

Montana

Water Supply Outlook Report

February 1st, 2015



Stuart Mountain SNOTEL, looking towards the Rattlesnake Wilderness outside of Missoula, MT.

Photo: Lucas Zukiewicz

For more water supply and resource management information, contact:

Lucas Zukiewicz
Water Supply Specialist
Federal Building
10 East Babcock, Room 443
Bozeman, MT 59715
Phone 406-587-6843
lucas.zukiewicz@mt.usda.gov
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/>

Montana Water Supply Outlook Report as of February 1st, 2015

How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C., 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer.

Overview

January was a tale of two seasons across the state of Montana. During the first week of January many basins across the state received the only significant snowfall of the month, building the optimism of water users and skiers about the annual snowpack after the two storms that occurred at the end of November and December boosted percentages of normal across the state. After this storm, SNOTEL data indicated that 8 of the 14 major basins in the state had snowpacks with basin wide-averages greater than 120 percent of normal for that date.

Unfortunately, a high pressure ridge built over the Treasure state during the 2nd and 3rd weeks of the month which blocked most storms from getting anywhere close the mountains of Montana until the middle of the third week in January. During this dry spell most basins saw the well above normal snowpack conditions trend downwards closer to normal after two weeks with little to no precipitation. Fortunately, temperatures during this period were close to normal or only slightly above, so while there wasn't snow falling in the mountains and valleys across the state, little to no melt was noted at most water yielding elevations.

As this ridge broke down, rain and snowfall was received along and west of the continental divide, but some basins in north and southwest Montana saw little precipitation from this event. In many parts of the state below 8000' in elevation this event fell in the form of rain on the snowpack and rain in the valleys. While not an uncommon occurrence to get a rain on snow event in this region, these types of events are usually associated with spring and not mid-winter in January. The snowpack was able to soak up this water, and there were increases in snow water equivalent at SNOTEL sites, with no additional snow depth.

The last week of January was anomalous for many reasons in our region. Record setting maximum daily temperatures were experienced at most SNOTEL sites on January 26th and 27th. The Burnt Mountain SNOTEL site located outside of Red Lodge reached 71 degrees for the high on Monday January 26th. In relation to the average daily air temperature these highs were 20 to 30 degrees above normal for those days, and many elevations were above freezing for the overnight lows over 2 to 3 days. The main impact the warm and dry high pressure had was the melting of snowpack at valley and lower elevations. SNOTEL sites at the lowest elevations recorded 0.5 to 1.0" of melt during the last week. The lack of snow during the previous few weeks and warm sunny days combined with this heat wave caused the further decline of the basins in relation to the February 1st normal. Fortunately, as the month came to a close there was a return to cooler weather and the melt ended in the mountains.

Like the weather this month, the basins themselves are variable in terms of snowpack percentage of normal. In some basins the water yielding elevations on main stems contain above average snowpack, while other contributors are well below normal. In general, snowpack percentages are generated on the major basin scale, and this month there is a lot of information that can be found by looking deeper into the individual basin reports to understand how the sub-basins of the major river systems are doing snowpack wise. Understanding how the snowpack in a specific area is doing in relation to the adjacent basins and rivers is critical in making water management and planning decisions.

Snowpack

From January 1st to February 1st all basins in the state saw a decline in snowpack percentages. The basins that saw the largest drop during the month were predominantly west of the Divide, though the Sun-Teton-Marias River basin saw a drop of 22 percent from 113 percent of normal to 91 percent of normal on February 1st. State-wide there was a ten percent decrease in snowpack from above normal 110% on Jan 1 to normal conditions on Feb 1.

West of the Divide the Kootenai River basin is the lowest in percentage of normal snowpack, and east of the Divide the Madison and St. Mary/Milk River basins have well below normal snowpack percentages for Feb 1. As you move away from the borders of the state the snowpack numbers generally improve, with most basins near normal to slightly above normal for Feb 1.

Looking into the distribution of snow in a few basins shows an interesting trend. Some basins along the Montana/Idaho border in southwest Montana and along the Canadian border have strong gradients of snowcover. In the southern part of the state, the headwaters of the Gallatin and Jefferson River basins have well below normal snowpack, but water yielding elevations downstream have normal to well above normal snowpack. The Sun-Teton-Marias basin in northern Montana and the Flathead River basin are showing similar trends with lower percentages as you move north in the basin.

Snowpack Percentage of Normal			
<i>River Basin</i>	Feb 1 % of Median	Monthly Change	% of Last Year
Columbia	98	-12%	94
Kootenai	69	-5%	77
Flathead	98	-12%	92
Upper Clark Fork	122	-12%	110
Bitterroot	107	-18%	97
Lower Clark Fork	81	-9%	89
Missouri	102	-9%	89
Missouri Headwaters	100	-7%	93
Jefferson	107	-10%	93
Madison	83	-4%	84
Gallatin	98	-3%	88
Missouri Mainstem	106	-15%	83
Headwaters Mainstem	122	-4%	97
Smith-Judith Musselshell	112	-4%	76
Sun-Teton-Marias	91	-22%	83
Milk	82		69
St. Mary	77	-9%	78
St. Mary & Milk	79	-12%	74
Yellowstone	106	-4%	90
Upper Yellowstone	111	-5%	93
Lower Yellowstone	101	-2%	88
East of Divide	103	-7%	89
West of Divide	98	-12%	94
Statewide	100	-10%	92

Precipitation

Mountain and valley precipitation was below normal for most basins in Montana during the month of January, state-wide only 88% of the average monthly precipitation fell. Most basins are still near to above the water year-to-date average for February 1st even with the lack of precipitation during the last month. State-wide there is 107 percent of the water year-to-date average on Feb 1. Only one major basin is well below normal for this time of year, the Madison River basin received only 67% of the average January precipitation and is 84 percent of normal for Feb 1. In general, valley locations were favored during the month of January with the exception being southwest Montana where mountain SNOTEL sites received more than valley weather stations.

Feb 1 Precipitation		
River Basin	January % of Average	Water Year % of Average
Columbia	85	109
Kootenai	66	96
Flathead	90	113
Upper Clark Fork	92	114
Bitterroot	91	120
Lower Clark Fork	85	105
Missouri	87	102
Jefferson	73	98
Madison	67	84
Gallatin	94	100
Missouri Mainstem	98	112
Smith-Judith Musselshell	111	105
Sun-Teton-Marias	83	113
St. Mary & Milk	92	115
Yellowstone	94	97
Upper Yellowstone	107	104
Lower Yellowstone	83	91
Statewide	88	107

Reservoirs

There is excellent carry-over from last year in the reservoirs across Montana. Reservoir storage west of the divide is currently 122 percent of average for February 1st and 95 percent of last year at this time. East of the divide reservoir storage is currently 114 percent of average and 115 percent of last year at this time.

Feb 1 Reservoir Storage		
River Basin	Feb 1 % of Average	Feb 1 % Last Year
Columbia	122	95
Kootenai	129	87
Flathead	117	105
Upper Clark Fork	115	117
Bitterroot	172	130
Lower Clark Fork	102	103
Missouri	114	116
Missouri Headwaters	103	108
Jefferson	96	122
Madison	113	102
Gallatin	100	102
Missouri below Toston	138	124
Missouri Mainstem	114	116
Smith-Judith Musselshell	169	158
Sun-Teton-Marias	108	112
Milk	159	108
St. Mary	188	181
St. Mary & Milk	167	123
Yellowstone	109	96
Upper Yellowstone	142	102
Lower Yellowstone	109	96
Statewide	116	108

Streamflow

Like the snowpack basin percentages of normal for February 1st, steamflow forecasts have dropped since January 1st. State-wide streamflows look to be near average given current snowpack conditions. West of the Divide streamflow prospects are slightly higher than east of the Divide. However, some basins west of the divide do have well below average streamflow forecasts. Forecasts on the Yaak, Tobacco and Fisher River feeding the Kootenai currently range from 65 to 76 percent of average for the April-July time period.

East of the Divide both the Upper and Lower Yellowstone, and combined Smith-Judith-Musselshell basins have above average forecasts on February 1st. Most of the other basins east of the Divide are slightly below average for April-July forecasts. There are a few basins of concern east of the Divide in southwest Montana. The upper reaches of the Jefferson basin in the Red Rocks and Ruby River drainages have seen below average streamflows 2 out of the last 3 years. This year the lack of snowfall doesn't look to improve the trend and forecasts are down from last month in these basins. Current snowpack and precipitation values for February 1st indicate 56 percent of of average flows for the Beaverhead at Clark Canyon and 60 percent of average flow for the Ruby River inflow to Ruby Reservoir.

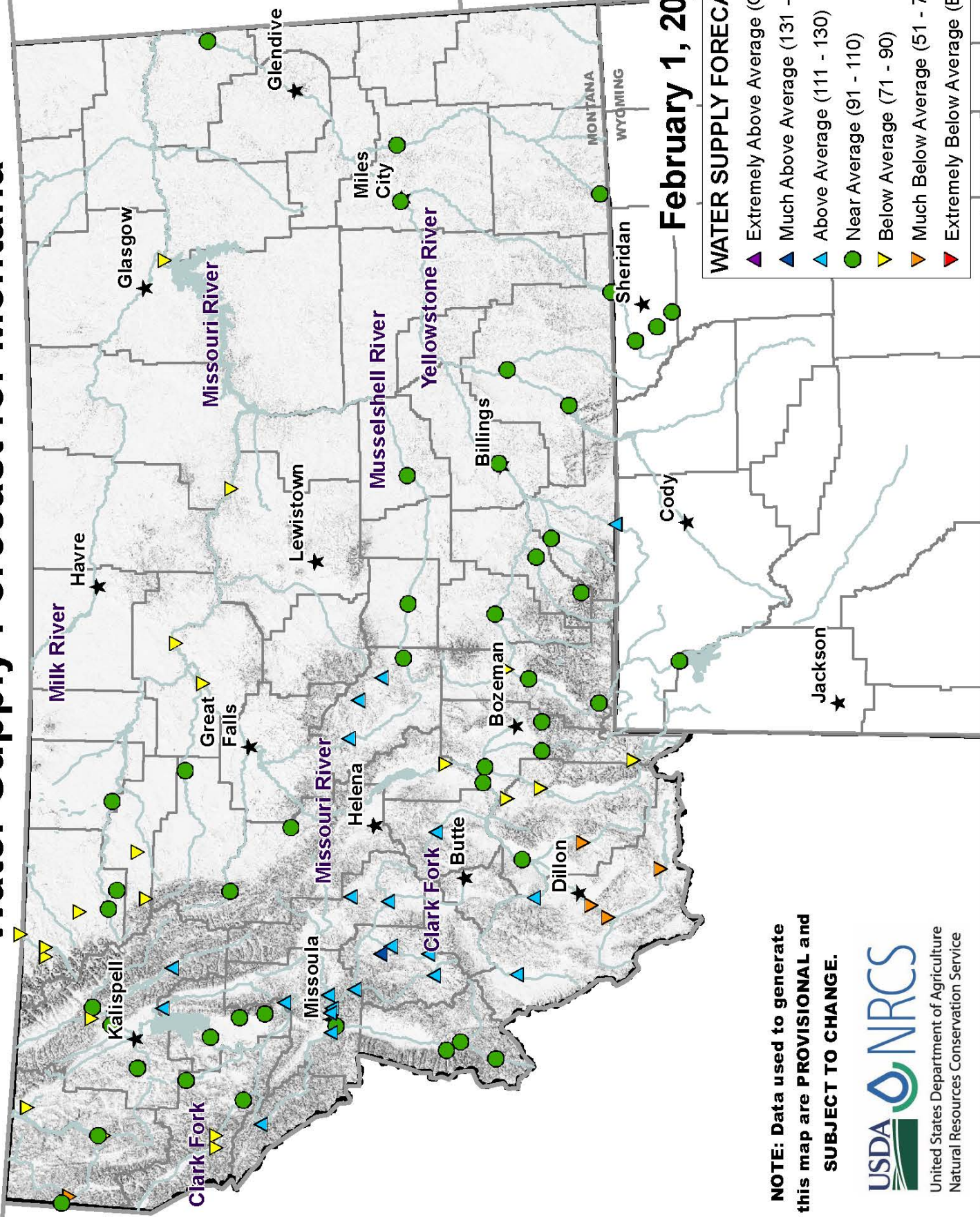
Streamflow forecasts on February 1st should be used knowing there is generally less skill at this time than forecasts later in the season as we reach peak accumulation of the snowpack. At this point the basins have normally received 65 percent of their seasonal snowpack, and future snowfall and weather conditions will dictate the timing and volume of runoff this spring.

Following are streamflow forecasts for the period April 1 through July 31. **THE FIGURES IN THE TABLE BELOW ARE AN AVERAGE OF ALL FORECASTS WITHIN THE PARTICULAR BASIN AT THE 50 PERCENT EXCEEDANCE ONLY. ALL 50 PERCENT EXCEEDANCE FORECASTS ASSUME NEAR NORMAL WEATHER THROUGH THE END OF THE FORECAST PERIOD.**

FOR FORECASTS ABOVE AND BELOW THE 50 PERCENT EXCEEDANCE, LOOK TO THE SPECIFIC BASIN REPORTS.

April-July Streamflow Forecast Period		
River Basin	Forecast as % of Average	Forecast as % Last Year's Flows
Columbia	103	77
Kootenai	91	78
Flathead	104	75
Upper Clark Fork	118	84
Bitterroot	109	65
Lower Clark Fork	107	79
Missouri	91	75
Missouri Headwaters	93	84
Jefferson	99	86
Madison	79	82
Gallatin	91	80
Missouri Mainstem	90	73
Headwaters Mainstem	90	73
Smith-Judith Musselshell	112	76
Sun-Teton-Marias	95	70
St. Mary	80	57
Milk (Mar-Sept)	82	59
Yellowstone	103	68
Upper Yellowstone	106	72
Lower Yellowstone	101	64
Statewide	100	73

Water Supply Forecast for Montana



February 1, 2015

NOTE: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE.



United States Department of Agriculture
Natural Resources Conservation Service

SWSI

The Surface Water Supply Index (SWSI) is a measure of available surface water availability for the spring and summer months. Water users that rely on mountain precipitation can use the index to evaluate seasonal surface water supplies. The SWSI accounts for mountain snowpack, mountain precipitation, streamflow, reservoir storage, and soil moisture.

Watershed	This month's SWSI	Last Year's SWSI
Marias above Tiber Reservoir	-0.5	-1.2
Tobacco	-2.7	-2.2
Kootenai Ft. Steele to Libby Dam	-1.1	-1.7
Kootenai below Libby Dam	0.6	1.4
Fisher	-1.8	0.7
Yaak	-3.3	-2.3
North Fk. Flathead	-1.6	-1.4
Middle Fk. Flathead	-0.4	-0.2
South Fk. Flathead	3.1	2.6
Flathead at Columbia Falls	0.7	0.4
Swan	2.0	1.3
Flathead at Polson	0.2	-0.2
Mission Valley	1.7	-0.3
Little Bitterroot	2.1	0.3
Clark Fork above Milltown	0.9	1.0
Blackfoot	0.2	0.4
Clark Fork above Missoula	1.1	0.1
Bitterroot	0.2	0.0
Clark Fork River below Bitterroot	0.8	0.3
Clark Fork River below Flathead	0.4	0.0
Beaverhead	-1.8	-2.3
Ruby	-1.6	-1.7
Big Hole	0.9	-0.2
Boulder (Jefferson)	0.5	-0.1
Jefferson	0.0	0.6
Madison	-1.6	-1.5
Gallatin	-0.9	-0.2
Missouri above Canyon Ferry	-0.9	0.1
Missouri below Canyon Ferry	-0.9	0.1
Smith	2.1	2.8
Sun	-0.7	-1.1
Teton	0.8	-0.2
Birch/Dupuyer Creeks	-0.2	-2.5
Marias	2.0	-0.2
Musselshell	1.1	1.4
Missouri above Fort Peck	0.4	0.2
Missouri below Fort Peck	0.0	-1.4
Milk		1.4
Dearborn near Craig	-0.5	-1.0
Yellowstone above Livingston	0.5	0.1
Shields	-0.4	1.5
Boulder (Yellowstone)	-0.5	1.0
Stillwater	0.2	0.0
Rock/Red Lodge Creeks	0.0	1.5
Clarks Fork Yellowstone	1.6	0.7
Yellowstone above Bighorn River	0.7	0.3
Bighorn below Bighorn Lake	0.1	0.1
Little Bighorn	-1.1	-0.2
Yellowstone below Bighorn	0.1	0.2
Tongue	-0.2	1.8
Powder	0.0	-0.4
Upper Judith	2.8	4.0
Saint Mary	-2.2	-0.6

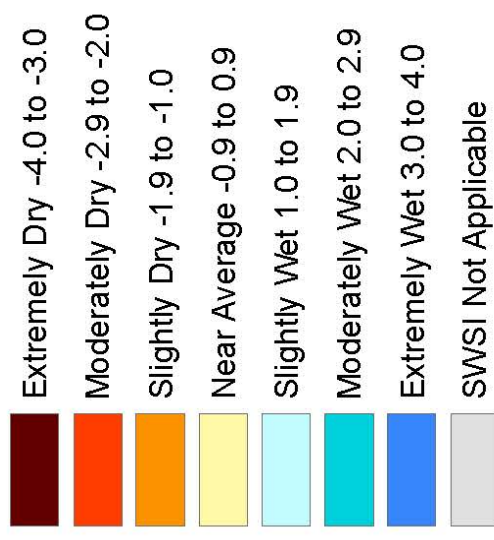
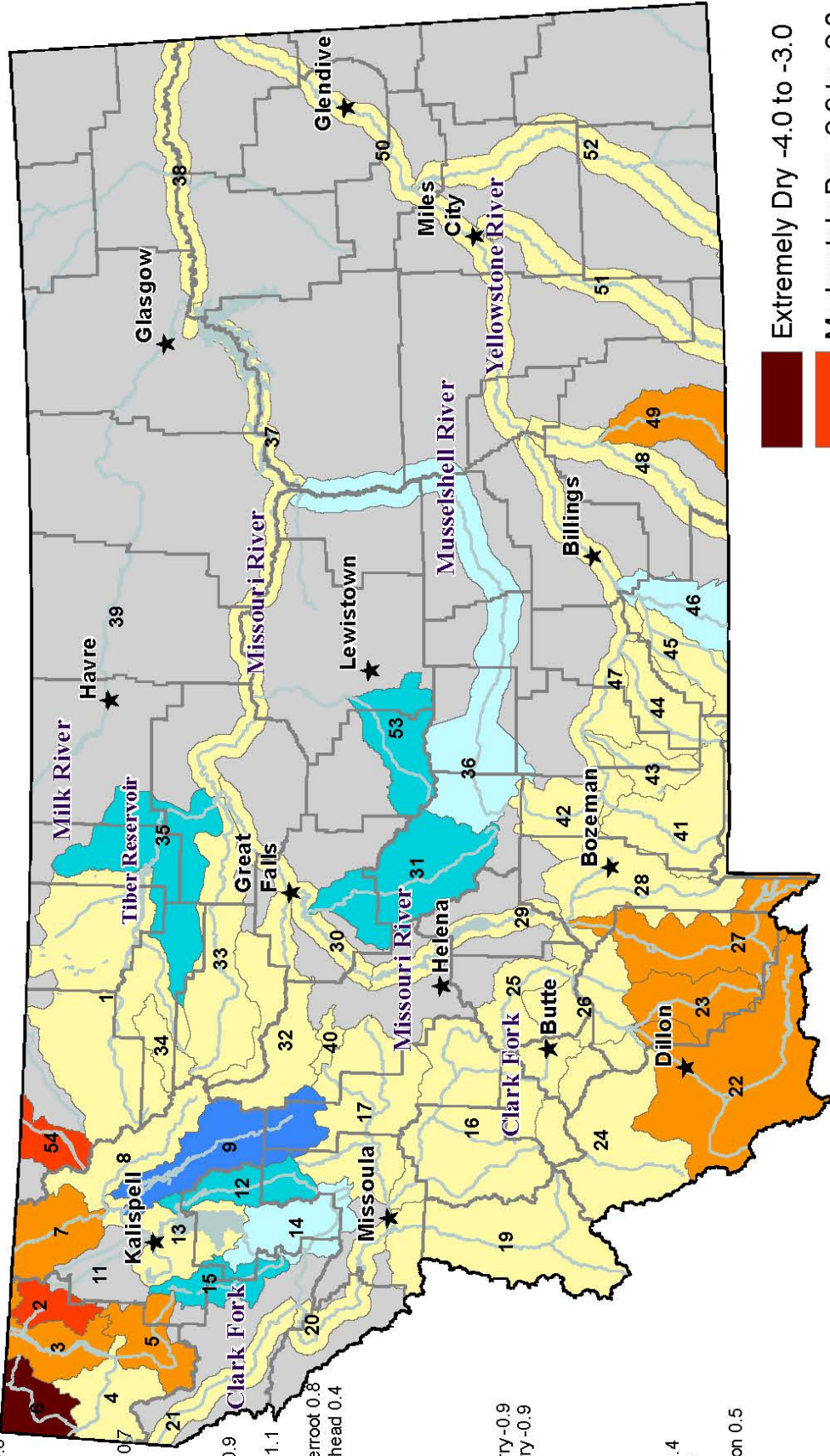
SWSI Scale

+3.0 to +4.0	Extremely Wet
+2.0 to +2.9	Moderately Wet
+1.0 to +1.9	Slightly Wet
+0.9 to -0.9	Near Average
-1.0 to -1.9	Slightly Dry
-2.0 to -2.9	Moderately Dry
-3.0 to -4.0	Extremely Dry

RIVER INDEX & SWSI VALUES

- 1 Marias above Tiber Reservoir -0.5
- 2 Tobacco -2.7
- 3 Kootenai Ft. Steele to Libby Dam -1.1
- 4 Kootenai below Libby Dam 0.6
- 5 Fisher -1.8
- 6 Yaak -3.3
- 7 North Fk. Flathead -1.6
- 8 Middle Fk. Flathead -0.4
- 9 South Fk. Flathead 3.1
- 10 Flathead at Columbia Falls 0.7
- 12 Swan 2
- 13 Flathead at Polson 0.2
- 14 Mission Valley 1.7
- 15 Little Bitterroot 2.1
- 16 Clark Fork above Milltown 0.9
- 17 Blackfoot 0.2
- 18 Clark Fork above Missoula 1.1
- 19 Bitterroot 0.2
- 20 Clark Fork River below Bitterroot 0.8
- 21 Clark Fork River below Flathead 0.4
- 22 Beaverhead -1.8
- 23 Ruby -1.6
- 24 Big Hole 0.9
- 25 Boulder (Jefferson) 0.5
- 26 Jefferson 0
- 27 Madison -1.6
- 28 Gallatin -0.9
- 29 Missouri above Canyon Ferry -0.9
- 30 Missouri below Canyon Ferry -0.9
- 31 Smith 2.1
- 32 Sun -0.7
- 33 Teton 0.8
- 34 Birch/Dupuyer Creeks -0.2
- 35 Marias 2
- 36 Musselshell 1.1
- 37 Missouri above Fort Peck 0.4
- 38 Missouri below Fort Peck 0
- 40 Dearborn near Craig -0.5
- 41 Yellowstone above Livingston 0.5
- 42 Shields -0.4
- 43 Boulder (Yellowstone) -0.5
- 44 Stillwater 0.2
- 45 Rock/Red Lodge Creeks 0
- 46 Clark Fork Yellowstone 1.6
- 47 Yellowstone above Bighorn River 0.7
- 48 Bighorn below Bighorn Lake 0.1
- 49 Little Bighorn -1.1
- 50 Yellowstone below Bighorn 0.1
- 51 Tongue -0.2
- 52 Powder 0
- 53 Upper Judith 2.8
- 54 Saint Mary -2.2

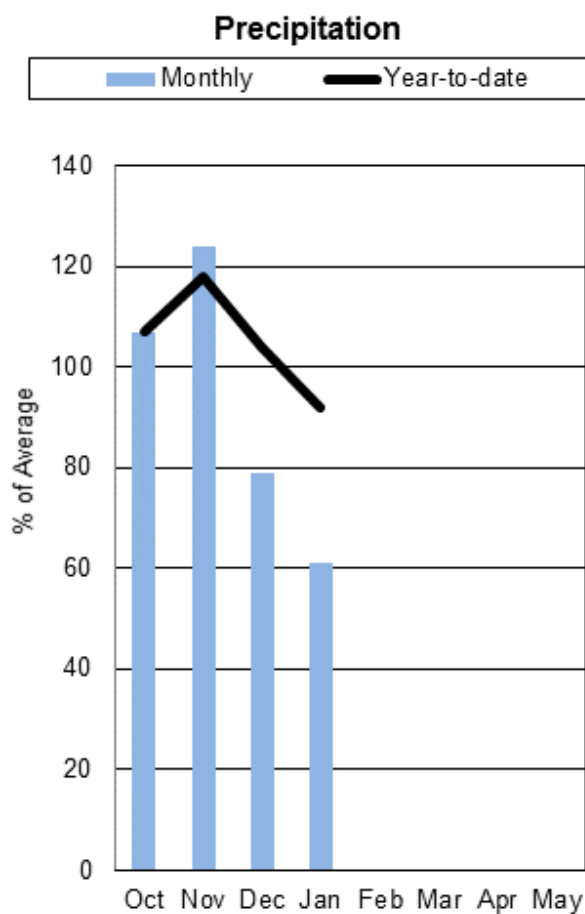
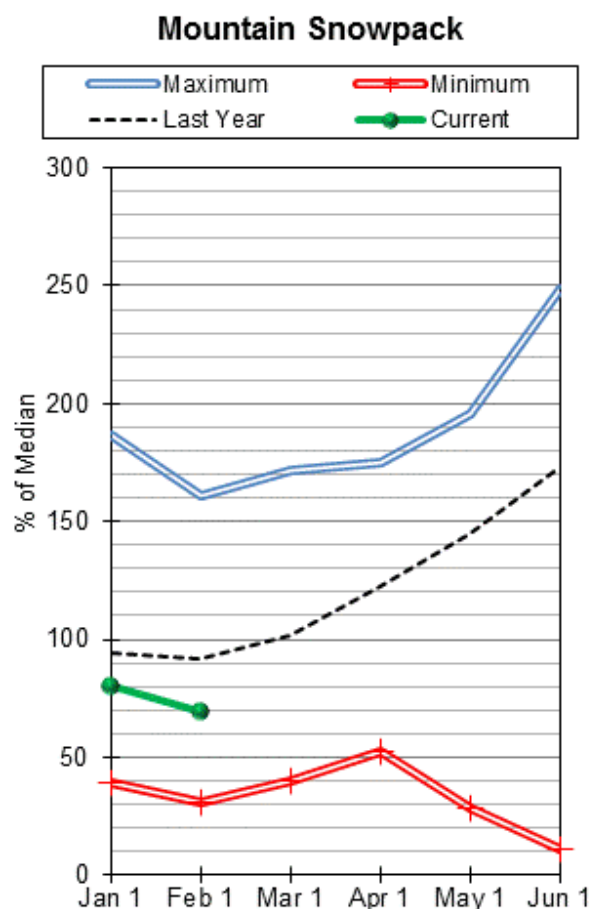
Surface Water Supply Index (SWSI) Values



February 1, 2015

NOTE: Data used to generate
this map are PROVISIONAL and
SUBJECT TO CHANGE.

Kootenai River Basin in Montana



The Kootenai River basin was mostly blocked by high pressure during the month of January and saw little snowfall during the month of January. Currently the Kootenai River basin is the lowest major basin in terms of snowpack across state. Canadian data indicates that slightly better conditions exist north of the border where snowpack is currently 81 percent of normal. However, SNOTEL sites and snow courses along the mainstem of the Kootenai are currently reporting 57 percent of normal snowpack. The Tobacco River basin currently has the highest snowpack in the area, but still well below normal at 82 percent.

Some snowfall did occur during the first week of the month, and when high pressure finally yielded and precipitation was experienced later in the month it was mostly in the form of rain on the snowpack. Record high temperatures and two nights with above freezing temperatures at SNOTEL sites in the basin during the last week caused some melt across the basin, but the change to cooler weather stopped the melt by February 1st. Beginning the month the basin snowpack was below normal at 80 percent of on January 1st, but the lack of snow during the month dropped the basin to 69 percent of normal on February 1st and 77 percent of last year at this time.

Valley weather stations received 125 percent of monthly average precipitation for January, while mountain SNOTEL sites received 64 percent. Currently on February 1st, the Kootenai River Basin is 96 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 85 percent of average.

Reservoir storage in Lake Koocanusa is 129 percent of average and 87 percent of last year at this time.

The basin-wide April-July average streamflow forecast for the Kootenai River is currently 91 percent of average and 78 percent of last year.

Kootenai River Basin In Montana

Streamflow Forecasts - February 1, 2015

KOOTENAI RIVER BASIN in MONTANA	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
Tobacco R nr Eureka	APR-JUL	62	79	90	71%	102	118	126
	APR-SEP	69	88	101	72%	114	133	140
Libby Reservoir Inflow ¹	APR-JUL	4030	4650	4940	93%	5220	5850	5340
	APR-SEP	4940	5520	5790	93%	6050	6640	6250
Fisher R nr Libby	APR-JUL	84	127	156	76%	186	230	205
	APR-SEP	93	138	169	77%	199	245	220
Yaak R nr Troy	APR-JUL	176	235	275	65%	315	375	420
	APR-SEP	190	250	290	66%	330	390	440
Kootenai R at Leonia ^{1,2}	APR-JUL	4830	5670	6050	92%	6430	7270	6600
	APR-SEP	5800	6610	6980	92%	7340	8150	7590

1) 90% and 10% exceedance probabilities are actually 95% and 5%

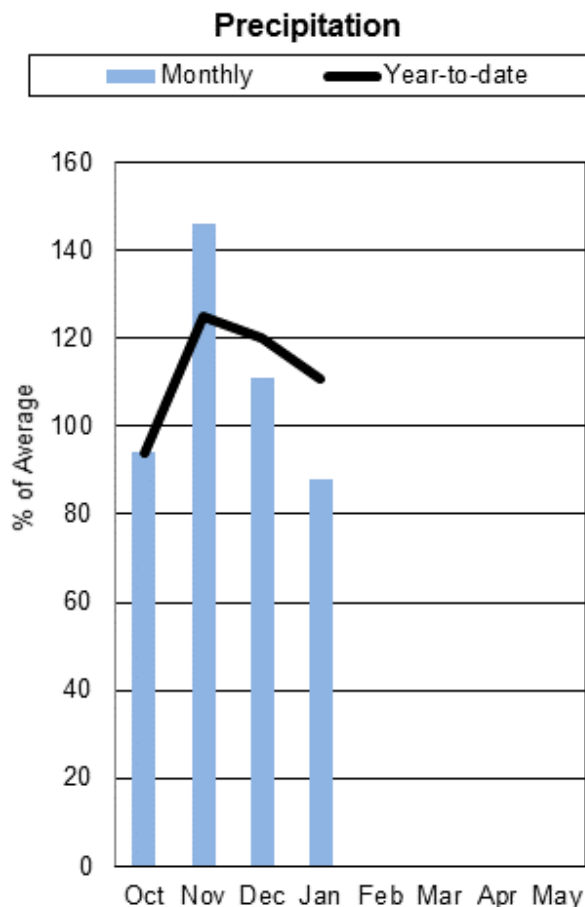
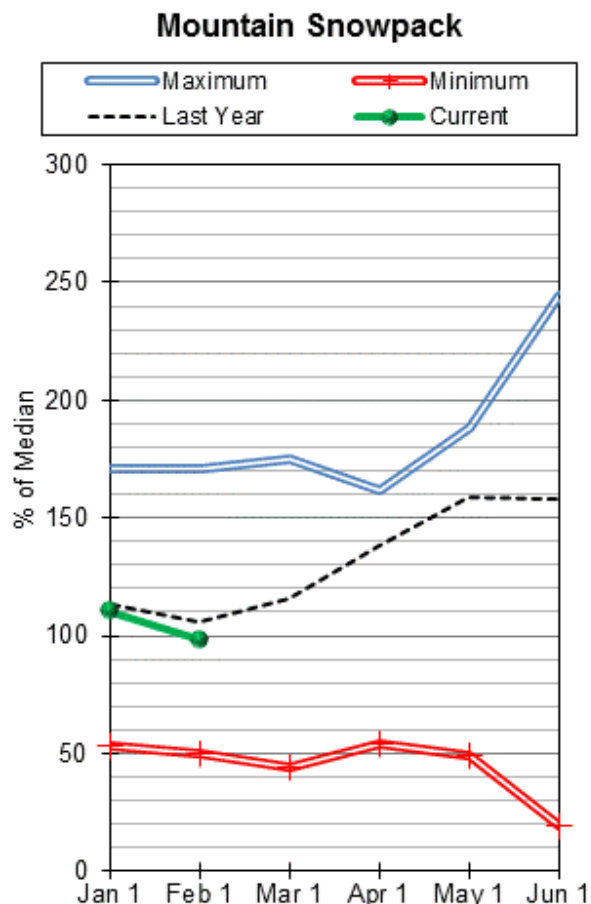
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Koocanusa	3705.0	4281.3	2865.0	5748.0
Basin-wide Total	3705.0	4281.3	2865.0	5748.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
KOOTENAY in CANADA	17	82%	95%
KOOTENAI MAINSTEM	3	57%	83%
TOBACCO	3	82%	98%
FISHER	1	77%	100%
YAAK	2	73%	83%
KOOTENAI RIVER BASIN in MONTANA	9	69%	89%
KOOTENAI ab BONNERS FERRY	25	79%	94%

Flathead River Basin



January started with snowfall in the Flathead River basin, but like the rest of the state the second and third weeks of the month were mostly dominated by high pressure and no snowfall. Currently there is a strong gradient from north to south in terms of percentage of normal within the basin. Snowpack across the border in Canada feeding the North Fork is currently well below normal at 63% of February 1st, and sites in Montana on the North Fork are currently 82 percent of normal. As you move south within the basin snowpack conditions improve in the Middle Fork (91% of normal) and South Fork (107% of normal). The southern basins currently have the best snowpack in the Flathead River basin with the Swan holding 112 percent of normal and Mission Valley holding 121 percent of normal for February 1st.

Of note are the record temperatures experienced during the last week of January. These temperatures were significant enough in the basin to cause 0.3 to 0.8 inches of loss (melt) of SWE at SNOTEL sites, and dropped the basin percentages from above normal conditions to near normal conditions on February 1st. Currently the basin is near normal at 98 percent of normal and 92 percent of last year at this time.

Valley weather stations received 180 percent of monthly average precipitation for January, while mountain SNOTEL sites received 88 percent. Currently on February 1st, the Flathead River Basin is 113 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 89 percent of average.

Basin-wide reservoir storages are 117 percent of average and 105 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Flathead River is currently at 104 percent of average and 75 percent of last year.

Flathead River Basin

Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

FLATHEAD RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
NF Flathead R nr Columbia Falls	APR-JUL	1120	1270	1370	89%	1470	1610	1540
	APR-SEP	1250	1410	1510	89%	1620	1770	1700
MF Flathead R nr West Glacier	APR-JUL	1220	1390	1500	100%	1610	1780	1500
	APR-SEP	1340	1510	1630	100%	1750	1920	1630
Sf Flathead R nr Hungry Horse	APR-JUL	1150	1280	1370	116%	1460	1590	1180
	APR-SEP	1220	1360	1450	115%	1540	1680	1260
Hungry Horse Reservoir Inflow ^{1,2}	APR-JUL	1780	2060	2180	117%	2310	2580	1860
	APR-SEP	1890	2180	2310	117%	2440	2730	1980
Flathead R at Columbia Falls ²	APR-JUL	4350	4810	5130	102%	5440	5900	5020
	APR-SEP	4730	5220	5550	102%	5880	6360	5450
Ashley Ck nr Marion ²	MAR	0.32	0.79	1.1	92%	1.42	1.89	1.19
	APR-JUL	3.9	5.4	6.3	97%	7.3	8.7	6.5
Swan R nr Bigfork	APR-JUL	535	590	630	121%	670	725	520
	APR-SEP	610	670	715	120%	760	820	595
Flathead Lake Inflow ^{1,2}	APR-JUL	4710	5550	5930	102%	6310	7150	5810
	APR-SEP	5080	5970	6380	102%	6790	7680	6270
Mill Ck ab Bassoo ck nr Niarada	APR-JUL	2.2	3.2	3.8	95%	4.5	5.5	4
	APR-SEP	2.5	3.5	4.2	95%	4.8	5.8	4.4
South Crow Ck nr Ronan	APR-JUL	8.6	10.1	11	109%	12	13.4	10.1
	APR-SEP	9.9	11.5	12.6	109%	13.7	15.3	11.6
Mission Ck nr St. Ignatius	APR-JUL	23	25	27	108%	28	30	25
	APR-SEP	27	30	32	107%	34	36	30
SF Jocko R nr Arlee	APR-JUL	30	35	39	118%	42	47	33
	APR-SEP	34	39	43	116%	46	52	37
NF Jocko R bl Tabor Feeder Canal	APR-JUL	29	33	35	113%	37	40	31
	APR-SEP	32	35	37	112%	39	42	33

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

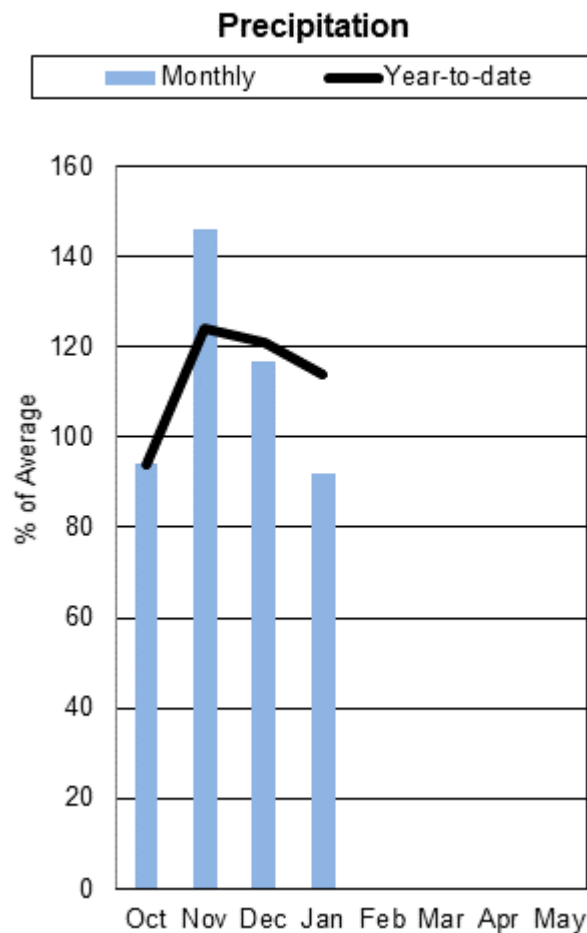
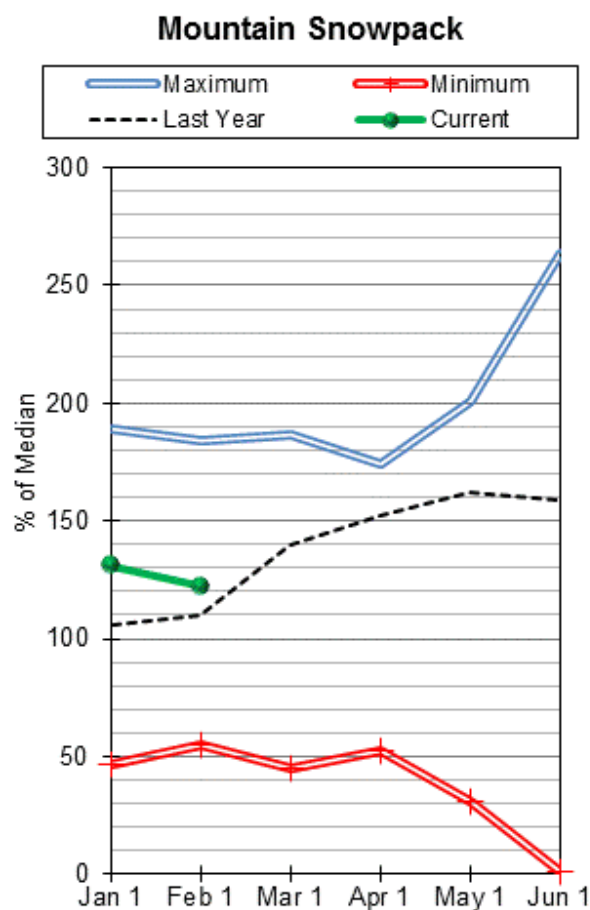
Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Camas (4)	34.6	22.7	18.2	45.2
Lower Jocko Lake	0.0	0.0	0.0	6.4
Mission Valley (8)	35.3	25.0	30.9	100.0
Hungry Horse Lake	2973.0	2848.2	2375.0	3451.0
Flathead Lake	925.5	901.5	955.6	1791.0

Basin-wide Total 3968.4 3797.4 3379.7 5393.6

of reservoirs 5 5 5 5

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
NF FLATHEAD in CANADA	2	63%	89%
NF FLATHEAD in MONTANA	7	82%	99%
MIDDLE FORK FLATHEAD	4	91%	108%
SOUTH FORK FLATHEAD	6	107%	111%
STILLWATER-WHITEFISH	6	92%	102%
SWAN	5	112%	111%
MISSION VALLEY	3	121%	109%
LITTLE BITTERROOT-ASHLEY	3	87%	88%
JOCKO	3	108%	104%
FLATHEAD in MONTANA	25	97%	105%
FLATHEAD RIVER BASIN	27	95%	105%

Upper Clark Fork River Basin



The Upper Clark Fork River Basin entered the month of January with well above average snowpack conditions at 132 percent of normal. Basin-wide snow water equivalent was further increased approximately 2.0 inches from the storm cycle over the first week of January. Mid-month did not receive any substantial accumulation. The basin experienced a slight reduction in snow water equivalent over the last week of January due to above average temperatures. North Fork Jocko SNOTEL topped the list, having a 0.7 inch reduction in snow water equivalent. Currently the basin is well above average at 122 percent of normal and 110 percent of last year.

Valley weather stations received 155 percent of monthly average precipitation for January, while mountain SNOTEL sites received 117 percent. Currently on February 1st, the Upper Clark Fork River Basin is 114 percent of water year-to-date average. Last year at this time the water year-to-date precipitation was 85 percent of average.

Basin-wide reservoir storage is currently 115 percent of average and 99 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Upper Clark Fork River is currently at 118 percent of average and 84 percent of last year.

Upper Clark Fork River Basin

Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

UPPER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Little Blackfoot nr Garrison	APR-JUL	51	69	81	116%	93	111	70
	APR-SEP	57	76	89	116%	101	120	77
Flint Ck nr Southern Cross	APR-JUL	8.6	12.5	15.1	122%	17.8	22	12.4
	APR-SEP	9.8	14.7	18	123%	21	26	14.6
Flint Ck bl Boulder Ck	APR-JUL	38	53	63	121%	73	88	52
	APR-SEP	49	67	79	120%	91	109	66
Lower Willow Ck Reservoir Inflow ²	APR-MAY	5.5	7.9	9.5	130%	11.1	13.5	7.3
	APR-JUL	7.8	11.5	14	132%	16.5	20	10.6
MF Rock Ck nr Philipsburg	APR-JUL	52	62	69	119%	76	86	58
	APR-SEP	58	69	77	118%	84	95	65
Rock Ck nr Clinton	APR-JUL	220	270	305	122%	340	390	250
	APR-SEP	250	305	345	123%	385	440	280
Clark Fork R ab Milltown	APR-JUL	410	555	655	124%	755	905	530
	APR-SEP	490	655	760	124%	870	1030	615
Nevada Ck nr Helmville	APR-MAY	4.5	7.8	10	119%	12.2	15.5	8.4
	APR-JUL	8	13.4	17	120%	21	26	14.2
Blackfoot R nr Bonner	APR-JUL	605	725	805	112%	885	1000	720
	APR-SEP	680	805	890	111%	975	1100	800
Clark Fork R ab Missoula	APR-JUL	1050	1310	1480	118%	1650	1900	1250
	APR-SEP	1220	1480	1660	117%	1850	2110	1420

1) 90% and 10% exceedance probabilities are actually 95% and 5%

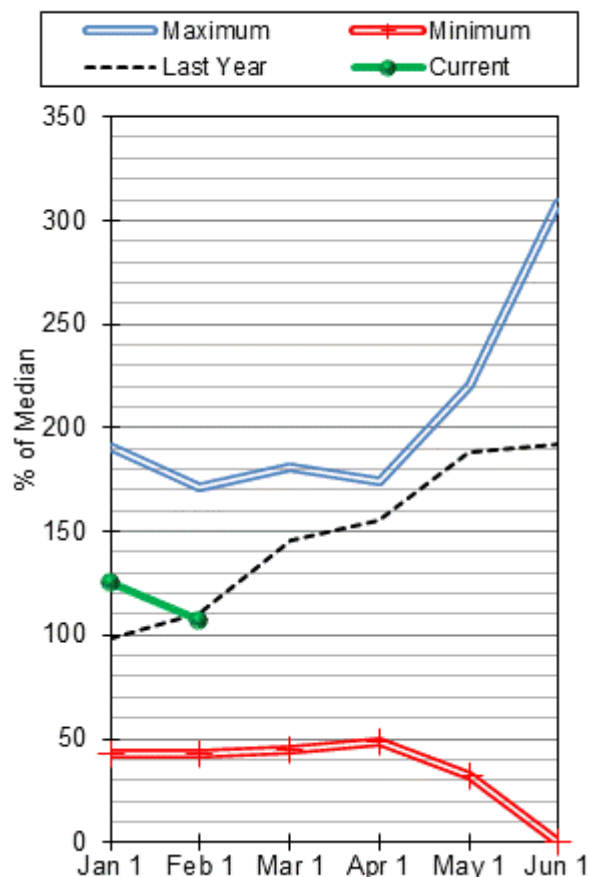
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

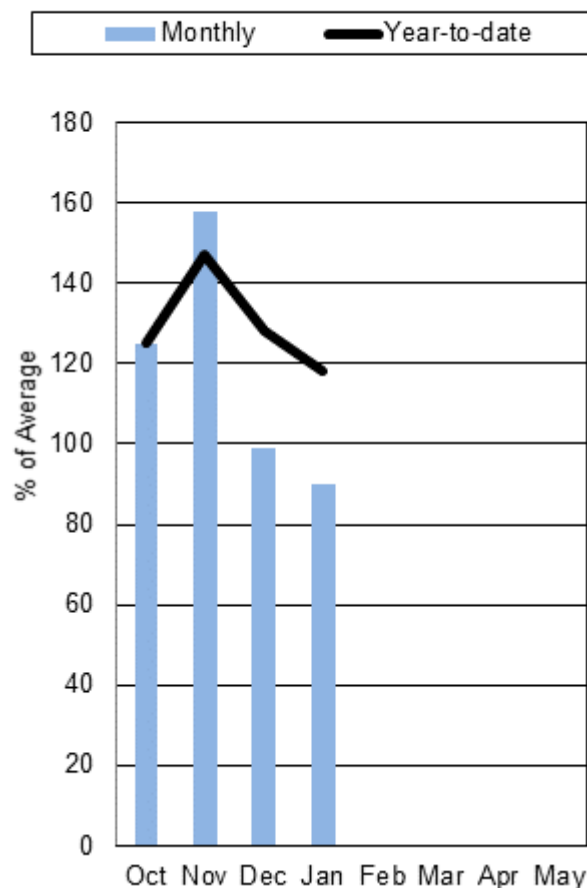
Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
East Fork Rock Creek Res	10.1	8.7	7.5	15.6
Georgetown Lake	28.8	27.2	27.8	31.0
Lower Willow Creek Reservoir		1.5	1.9	4.9
Nevada Creek Res	7.5	3.8	5.0	12.6
Basin-wide Total	46.4	39.7	40.3	59.2
# of reservoirs	3	3	3	3
Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median	
CLARK FORK ab FLINT CREEK	10	123%	119%	
FLINT CREEK	5	132%	111%	
ROCK CREEK	3	119%	106%	
CLARK FORK ab BLACKFOOT	16	123%	115%	
BLACKFOOT	12	118%	104%	
UPPER CLARK FORK RIVER BASIN	26	121%	110%	

Bitterroot River Basin

Mountain Snowpack



Precipitation



The Bitterroot River Basin experienced its most significant January snow accumulation over the 1st week and 3rd weekend of the month. Combined these storms increased the basin-wide snow water equivalent by over 4.0 inches. The southern end of the basin has been favored greatly this water year. On February 1st Saddle Mountain SNOTEL site's snow water equivalent was at 121 percent of normal while Lolo Pass SNOTEL site was at 90 percent of normal. Currently the basin is above average at 107 percent of normal and 97 percent of last year.

Valley weather stations received 111 percent of monthly average precipitation for January, while mountain SNOTEL sites received 90 percent. Currently on February 1st, the Bitterroot River Basin is 120 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 85 percent of average.

Painted Rocks Lake reservoir is currently at 141 percent of average and Lake Como reservoir is currently 188 percent of average. Basin-wide reservoir storage is at 172 percent of average and 132 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Bitterroot River is currently at 109 percent of average and 65 percent of last year.

Bitterroot River Basin

Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

BITTERROOT RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
WF Bitterroot R Nr Conner ²	APR-JUL	89	118	137	107%	157	185	128
	APR-SEP	95	128	150	108%	172	205	139
Bitterroot R Nr Darby	APR-JUL	295	380	435	106%	495	580	410
	APR-SEP	355	440	500	106%	560	645	470
Como Reservoir Inflow ²	APR-JUL	70	77	82	108%	87	94	76
	APR-SEP	73	81	86	109%	91	98	79
Bitterroot R nr Missoula	APR-JUL	955	1130	1260	110%	1380	1560	1150
	APR-SEP	1050	1240	1370	110%	1500	1700	1250

1) 90% and 10% exceedance probabilities are actually 95% and 5%

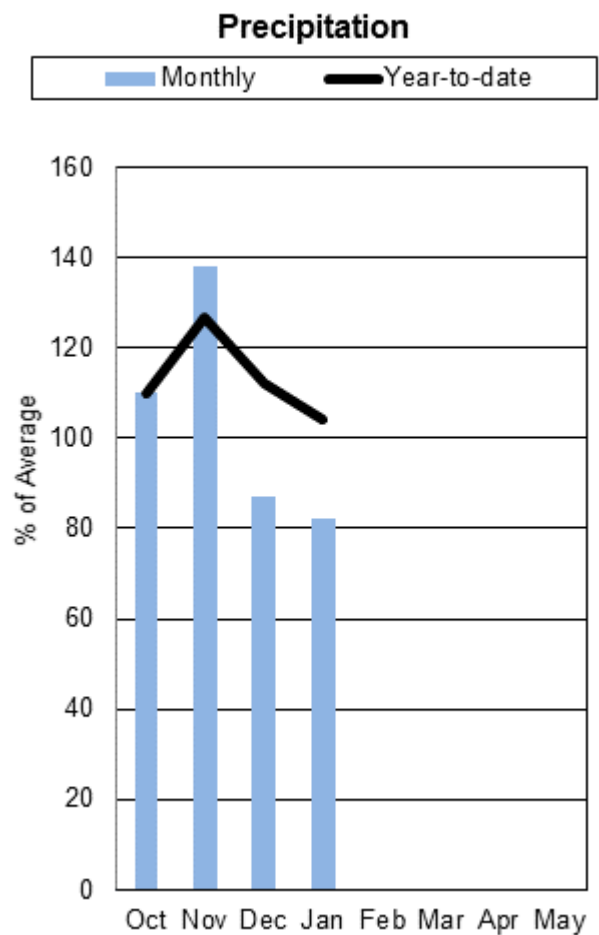
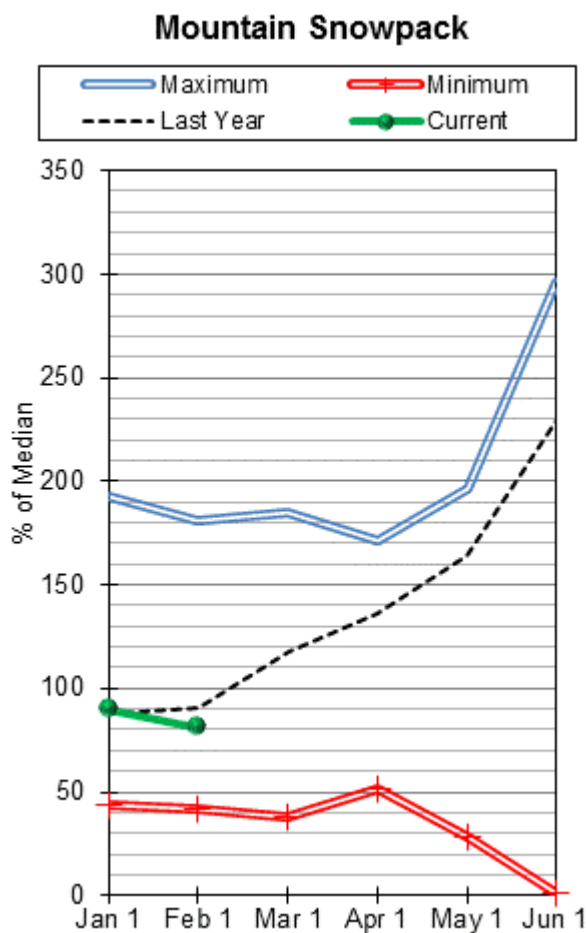
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Painted Rocks Lake	8.3	11.5	5.9	31.7
Lake Como	20.7	10.8	11.0	34.9
Basin-wide Total	29.0	22.3	16.9	66.6
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
WEST FORK BITTERROOT	2	119%	122%
EAST SIDE BITTERROOT	3	115%	112%
WEST SIDE BITTERROOT	3	101%	108%
BITTERROOT RIVER BASIN	7	107%	111%

Lower Clark Fork River Basin



The Lower Clark Fork started the month receiving much needed snowfall during the first week which helped the basin to reach near normal snowpack conditions. This was brief lived however, as high pressure and lack of snowfall during the rest of the month have has dropped the basin percentages for February 1st.

Looking across the basin, snowpack in the lower reaches of the Lower Clark Fork is well below the snowpack in the upper reaches. As you approach the Idaho border snowpack percentages of normal at SNOTEL sites and snow courses drop significantly. In the upper reaches the snowpack is near to only slightly below normal (90-102 percent), but as you move northwest the basin percentages drop to well below normal (54 to 77 percent). The lower stretches of the basin are consistent with its northerly neighbor the Kootenai River basin, where well above average would be required to reach normal snowpack levels by the beginning of snowmelt.

Valley weather stations received 99 percent of monthly average precipitation for January, while mountain SNOTEL sites received 104 percent. Currently on February 1st, the Lower Clark Fork River Basin is 105 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 72 percent of average.

Reservoir storage in Noxon Rapids is currently at 102 percent of average and 103 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Lower Clark Fork River is currently at 107 percent of average and 79 percent of last year.

Lower Clark Fork River Basin Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

LOWER CLARK FORK RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Clark Fork R bl Missoula	APR-JUL	2020	2430	2710	113%	2990	3400	2400
	APR-SEP	2270	2700	3000	112%	3300	3740	2670
Clark Fork R at St. Regis ¹	APR-JUL	2520	3250	3580	113%	3910	4640	3160
	APR-SEP	2830	3610	3960	113%	4310	5080	3510
Clark Fork R nr Plains ^{1,2}	APR-JUL	7490	9070	9780	106%	10500	12100	9200
	APR-SEP	8250	9920	10700	106%	11400	13100	10100
Thompson nr Thompson Falls	APR-JUL	78	115	135	75%	165	200	181
	APR-SEP	83	123	150	73%	177	215	205
Prospect Ck at Thompson Falls	APR-JUL	47	64	75	74%	86	103	102
	APR-SEP	51	68	80	73%	92	109	110
Clark Fork R at Whitehorse Rapids ^{1,2}	APR-JUL	8560	10300	11100	106%	11800	13600	10500
	APR-SEP	9470	11300	12100	105%	12900	14800	11500

1) 90% and 10% exceedance probabilities are actually 95% and 5%

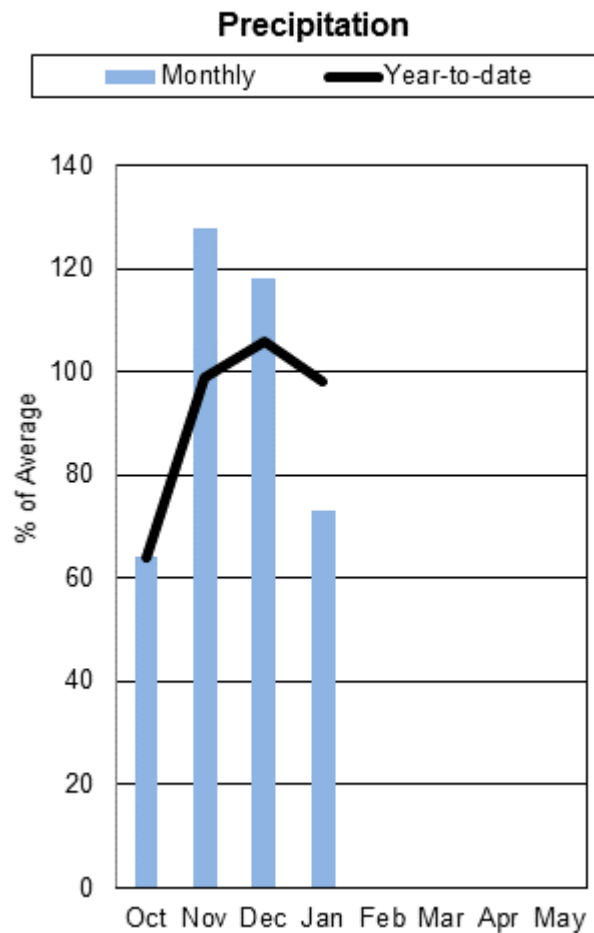
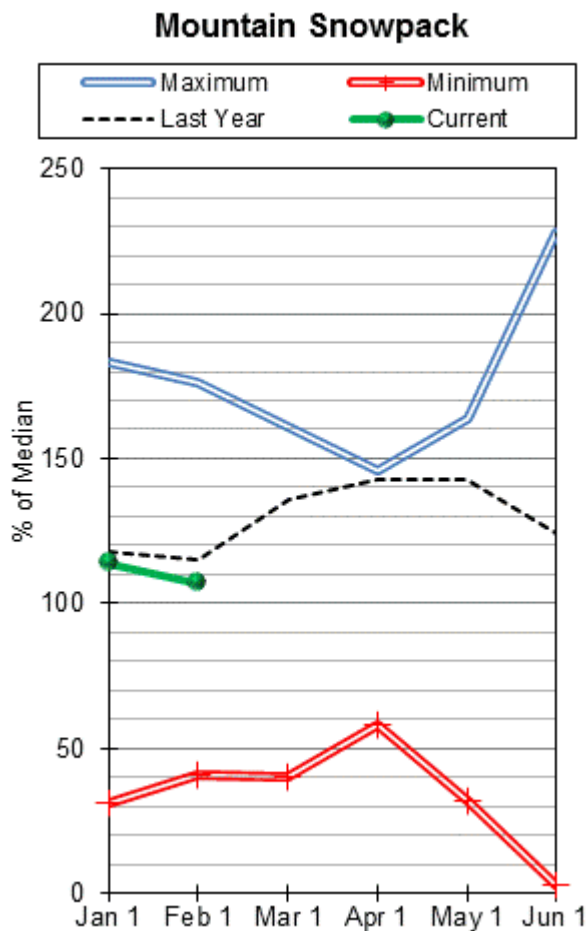
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Noxon Rapids Reservoir	321.9	312.9	315.0	335.0
Basin-wide Total	321.9	312.9	315.0	335.0
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
LOWER CLARK FORK RIVER BASIN	7	81%	91%

Jefferson River Basin



Some areas within the Jefferson River basin are doing very well, while other parts of the basin continue to remain well below normal for February 1st in terms of snowpack. The basins along the Idaho/Montana border are in general well above average with the Big Hole River basin currently 121% of normal, and Beaverhead basin currently at 102% overall. The basin that feeds the Jefferson from the north, the Boulder River basin, currently has the highest percentage of normal snowpack with 133% of normal for Feb 1.

It needs to be noted that some sub-basins in the Jefferson River basin continue to be well below average. The headwaters of the Beaverhead in the Red Rocks valley, and basin just to the north the Ruby River basin, are well below normal for February 1st. This area did receive some snowfall with the rest of the basin at the beginning of January, but has seen very little since. On February 1st, there were only 2 in the last 35 years with lower basin snow water equivalent values in the Ruby River basin, and 5 in the last 35 years in the Red Rocks area. Well above normal snowfall would be required to yield average runoff conditions this spring.

As a whole, the Jefferson River basin is doing well snowpack wise, currently 107 percent of normal for Feb 1, and 115 percent of last year at this time.

Valley weather stations received 32 percent of monthly average precipitation for January, while mountain SNOTEL sites received 73 percent. Currently on February 1st, the Jefferson River Basin is 105 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 72 percent of average.

Clark Canyon Reservoir is currently at 82 percent of average and Ruby Reservoir is currently at 149 percent of average. Basin-wide reservoir storage is at 97 percent of average and 88 percent of last year of last year at this time.

The basin-wide average April-July streamflow forecast for the Jefferson River is currently at 99 percent of average and 86 percent of last year.

Jefferson River Basin

Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

JEFFERSON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lima Reservoir Inflow ²								
	APR-JUL	20	40	53	65%	66	86	82
	APR-SEP	17.6	40	56	63%	72	94	89
Clark Canyon Inflow ²								
	APR-JUL	-15	22	57	56%	92	144	101
	APR-SEP	-4	33	71	59%	109	166	120
Beaverhead R at Barretts ²								
	APR-JUL	20	36	86	67%	135	210	129
	APR-SEP	30	48	106	68%	165	250	156
Ruby R Reservoir Inflow ²								
	APR-JUL	20	36	46	60%	57	72	77
	APR-SEP	28	45	58	64%	70	88	91
Big Hole R at Wisdom								
	APR-JUL	56	97	124	122%	151	192	102
	APR-SEP	59	102	132	122%	162	205	108
Big Hole R nr Melrose								
	APR-JUL	455	570	650	126%	730	850	515
	APR-SEP	485	615	705	126%	795	925	560
Jefferson R nr Twin Bridges ²								
	APR-JUL	380	575	705	102%	840	1030	690
	APR-SEP	395	620	770	105%	925	1150	730
Boulder R nr Boulder								
	APR-JUL	53	69	80	116%	91	107	69
	APR-SEP	58	75	87	118%	99	116	74
Willow Ck Reservoir Inflow ²								
	APR-JUL	2.3	8.7	13.1	78%	17.4	24	16.8
	APR-SEP	4.3	11.2	16	83%	21	28	19.3
Jefferson R nr Three Forks ²								
	APR-JUL	295	520	675	91%	825	1050	740
	APR-SEP	310	560	730	91%	900	1150	800

1) 90% and 10% exceedance probabilities are actually 95% and 5%

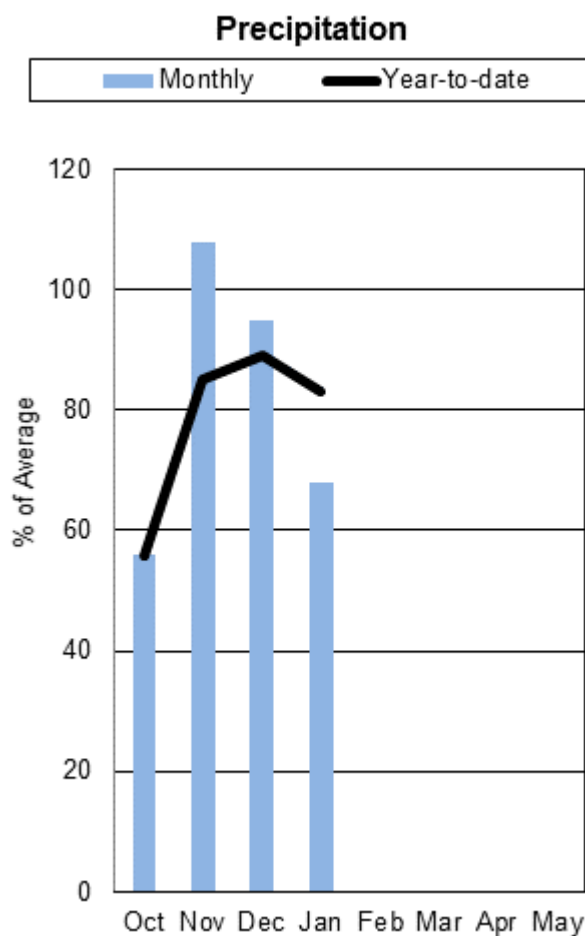
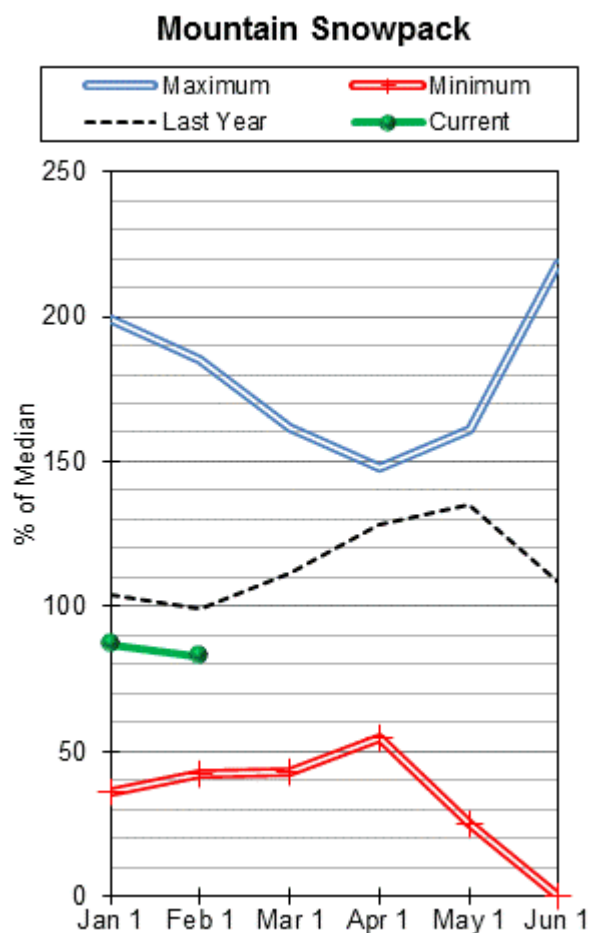
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lima Reservoir	33.4	22.8	29.3	84.0
Clark Canyon Res	99.4	84.9	121.7	255.6
Ruby River Reservoir	34.6	29.0	23.2	38.8
Basin-wide Total	167.3	136.7	174.2	378.4
# of reservoirs	3	3	3	3

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
BEAVERHEAD	8	102%	101%
RUBY	5	72%	114%
BIGHOLE	10	121%	124%
BOULDER	7	133%	127%
JEFFERSON RIVER BASIN	25	107%	115%

Madison River Basin



Of the major river basins in southwest Montana the Madison River basin is currently the lowest in terms of percentage of normal snowpack for February 1st. The basin received some much needed snowfall during the first week of the month, but received less than 1" of SWE basin wide during the latter portion of January. Above Hebgen Reservoir snowpack numbers are slightly higher than the lower stretches of the Madison. Above Hebgen the snowpack is 86 percent of normal for Feb 1, while below the dam it is currently 81 percent of normal. While the snowpack numbers are low, it is possible to this deficit to be made up as we are very near the percentages we saw basin wide at this time last year. As a whole the Madison River basin is currently 83 percent of normal, and 99 percent of last year at this time.

Valley weather stations received 50 percent of monthly average precipitation for January, while mountain SNOTEL sites received 68 percent. Currently on February 1st, the Madison River Basin is 84 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 90 percent of average.

Hebgen Lake is currently at 114 percent and Ennis Lake is currently at 98 percent of average. Basin-wide reservoir storage is at 113 percent of average and 102 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Madison River is currently at 79 percent of average and 82 percent of last year.

Madison River Basin Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

MADISON RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Hebgen Reservoir Inflow ²	APR-JUL	245	285	315	85%	345	385	370
	APR-SEP	320	370	405	86%	440	490	470
Ennis Reservoir Inflow ²	APR-JUL	325	415	475	76%	535	625	625
	APR-SEP	425	530	600	77%	670	775	775

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

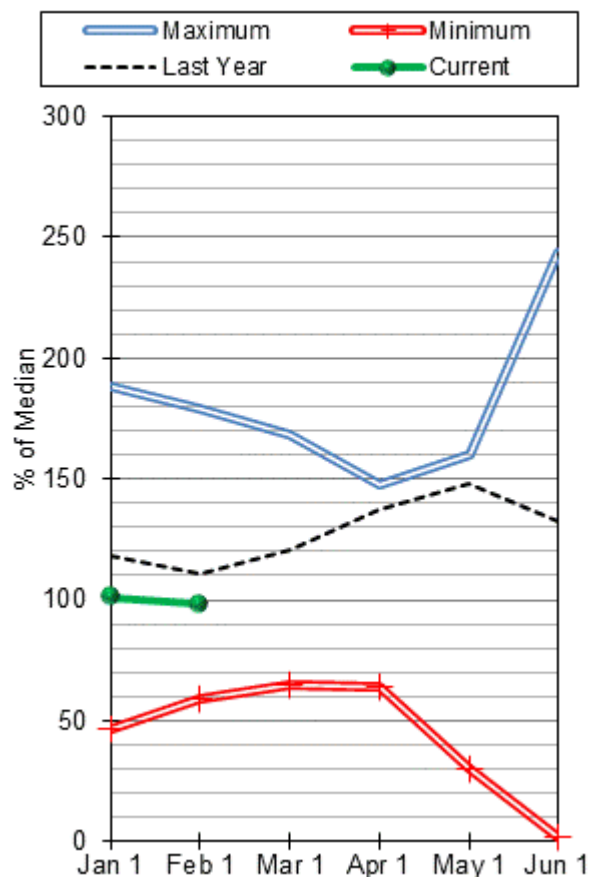
3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Ennis Lake	29.2	28.9	29.8	41.0
Hebgen Lake	318.8	311.0	279.0	377.5
Basin-wide Total	348.1	339.9	308.8	418.5
# of reservoirs	2	2	2	2

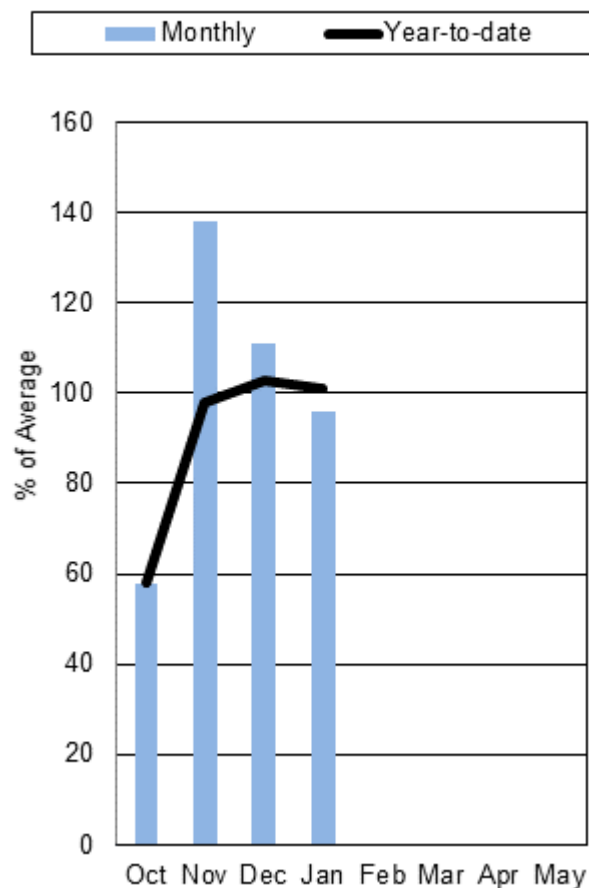
Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
MADISON abv HEBGEN LAKE	6	86%	91%
MADISON blw HEBGEN LAKE	8	81%	105%
MADISON RIVER BASIN	14	83%	99%

Gallatin River Basin

Mountain Snowpack



Precipitation



Conditions vary greatly across the Gallatin River basin as of February 1st, and snow conditions for skiing have varied as well over the same time period. A snowy entry to the month boosted hopes of local skiers that a similar winter to last year with abundant powder turns may play out. Unfortunately, the excellent conditions quickly gave way to the high pressure that dominated the state during the middle of the month. A very uncharacteristic min-winter rain on snow event occurred during the third week of the month up to about 8000'. These events have the positive effect of adding snow-water to the snowpack, but quickly degrade the snow conditions for skiing.

The Upper Gallatin above Gateway currently have the lowest snowpack in the basin at 81 percent of normal for Feb 1. Fortunately, conditions improve as you move north within the Gallatin basin where the Middle Creek/Hyalite snowpack is 99% of normal, and the snowpack in the Bridger Range is 138 percent of normal for Feb 1. This gradient is important, as the bulk of the flow in the Gallatin River is driven by snowmelt and precipitation in the Upper Gallatin. This area is usually favored during the coming 2 to 3 months for snowfall, so a close eye will be kept on snow totals before we begin our annual spring runoff.

Valley weather stations received 57 percent of monthly average precipitation for January, while mountain SNOTEL sites received 96 percent. Currently on February 1st, the Gallatin River Basin is 100 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 103 percent of average.

Middle Creek Reservoir is currently at 100 percent of average and 102 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Gallatin River is currently at 91 percent of average and 80 percent of last year.

Gallatin River Basin Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

GALLATIN RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gallatin R nr Gateway	APR-JUL	270	330	365	91%	405	460	400
	APR-SEP	320	385	430	91%	475	540	470
Hyalite Reservoir Inflow ²	APR-JUL	16.1	18.3	19.9	100%	21	24	20
	APR-SEP	18.7	21	23	100%	24	27	23
Gallatin R at Logan	APR-JUL	230	330	400	91%	470	570	440
	APR-SEP	265	380	455	90%	530	645	505

1) 90% and 10% exceedance probabilities are actually 95% and 5%

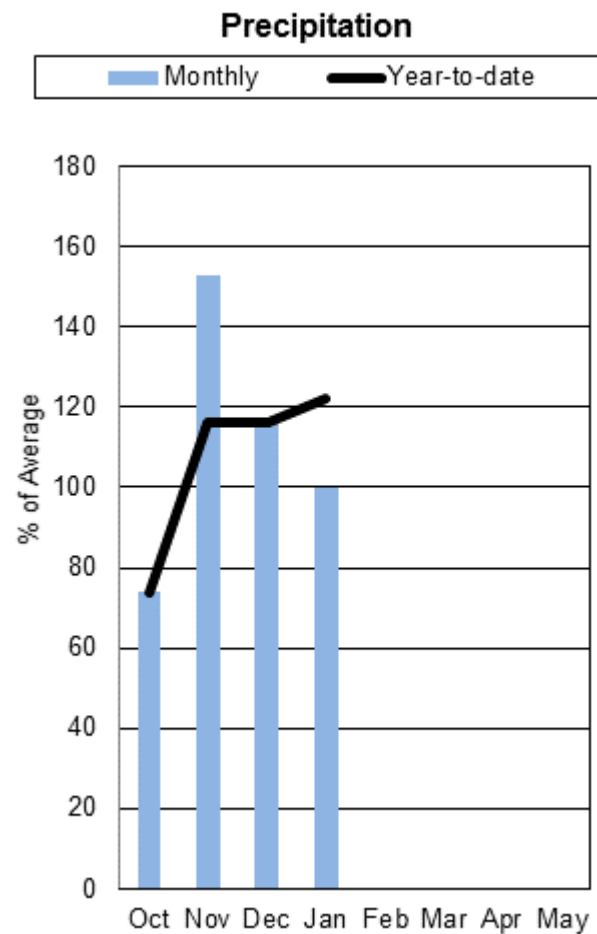
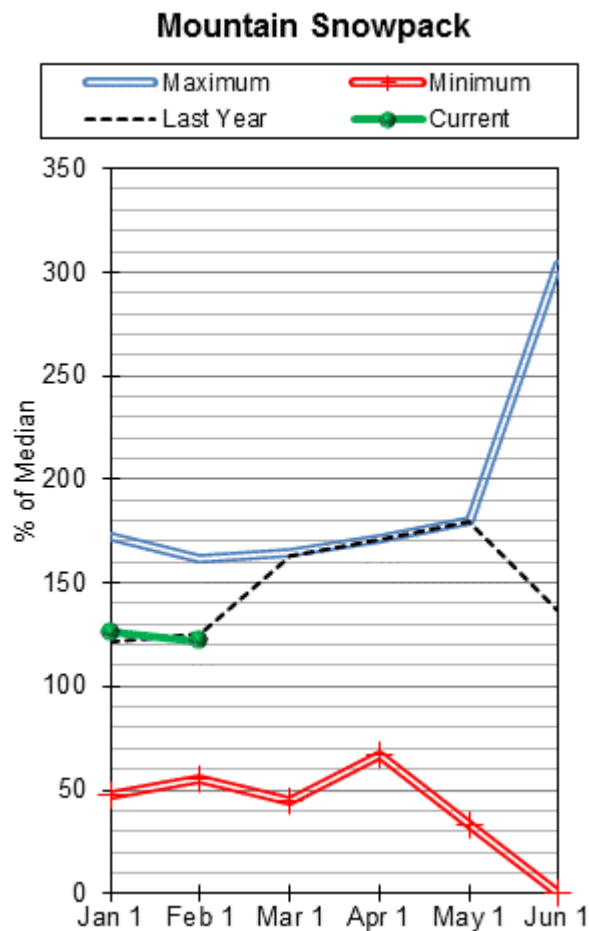
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Middle Creek Res	5.3	5.2	5.3	10.2
Basin-wide Total	5.3	5.2	5.3	10.2
# of reservoirs	1	1	1	1

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
UPPER GALLATIN	4	81%	96%
HYALITE	2	99%	121%
BRIDGER	2	137%	142%
GALLATIN RIVER BASIN	8	98%	111%

Missouri Mainstem River Basin



As you move north within the Missouri Mainstem River Basin the percentages of normal snowpack decreases. While the headwaters of the Mainstem around Helena (122% for Feb 1) and Smith-Judith-Musselshell basins (112%) are well above normal regarding snowpack, the combined basin to the north in the Front Range the Sun-Teton-Marias is below normal for February 1st. The lack of snowfall and melt at low elevations in the northern basins due to the uncharacteristically warm January temperatures dropped the basin wide percentages 18 to 23 percent of normal during the month from above normal conditions on Jan 1 to below normal conditions on Feb 1.

Overall the combined Missouri Mainstem River basin is still above normal for February 1st basin wide snow water equivalent at 108 percent of normal, and 127 percent of last year at this time.

Valley weather stations received 140 percent of monthly average precipitation for January, while mountain SNOTEL sites received 96 percent. Currently on February 1st, the Missouri Mainstem River Basin is 112 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 100 percent of average.

Fort Peck Lake is currently at 116 percent of average and Lake Helena is currently at 91 percent of average. Basin-wide reservoir storage is at 114 percent of average and 116 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Missouri Mainstem River is currently at 91 percent of average and 73 percent of last year.

Missouri Mainstem Basin

Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

MISSOURI MAINSTEM BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Missouri R at Toston ²	APR-JUL	900	1280	1540	86%	1800	2180	1790
	APR-SEP	1020	1470	1780	86%	2090	2540	2070
Dearborn R nr Craig	APR-JUL	36	63	81	91%	99	126	89
	APR-SEP	40	68	87	92%	107	135	95
Missouri R at Fort Benton ²	APR-JUL	1350	1900	2270	87%	2640	3190	2610
	APR-SEP	1600	2260	2710	87%	3160	3820	3110
Missouri R nr Virgelle ²	APR-JUL	1600	2210	2630	88%	3050	3660	3000
	APR-SEP	1830	2570	3080	88%	3590	4330	3520
Missouri R nr Landusky ²	APR-JUL	1700	2340	2780	88%	3220	3860	3160
	APR-SEP	1950	2730	3260	88%	3790	4570	3720
Missouri R bl Fort Peck Dam ²	APR-JUL	1630	2330	2810	87%	3290	3990	3240
	APR-SEP	1660	2560	3170	86%	3780	4680	3700
Lake Sakakawea Inflow ²	APR-JUL	5270	6870	7970	96%	9050	10600	8310
	APR-SEP	5620	7600	8950	95%	10300	12300	9400

1) 90% and 10% exceedance probabilities are actually 95% and 5%

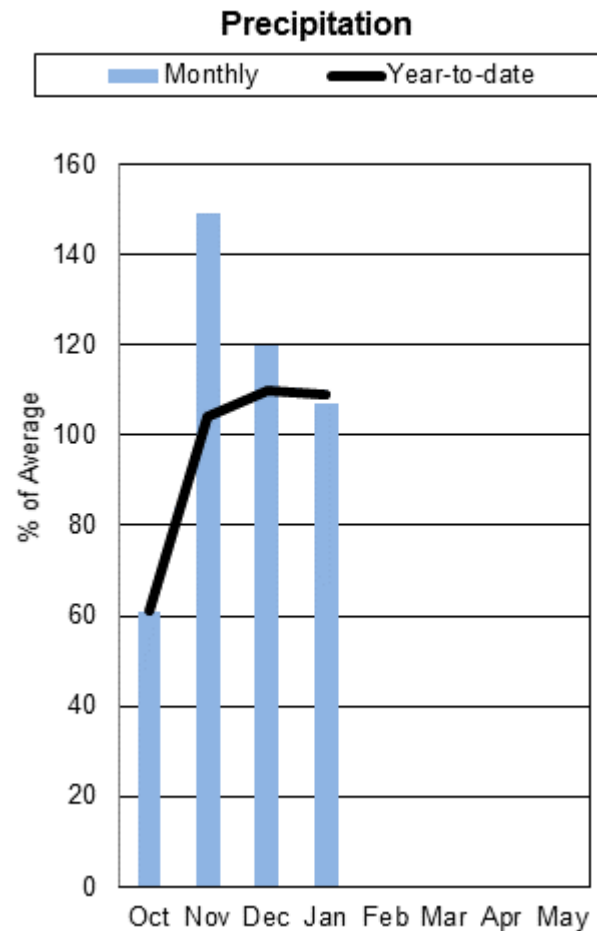
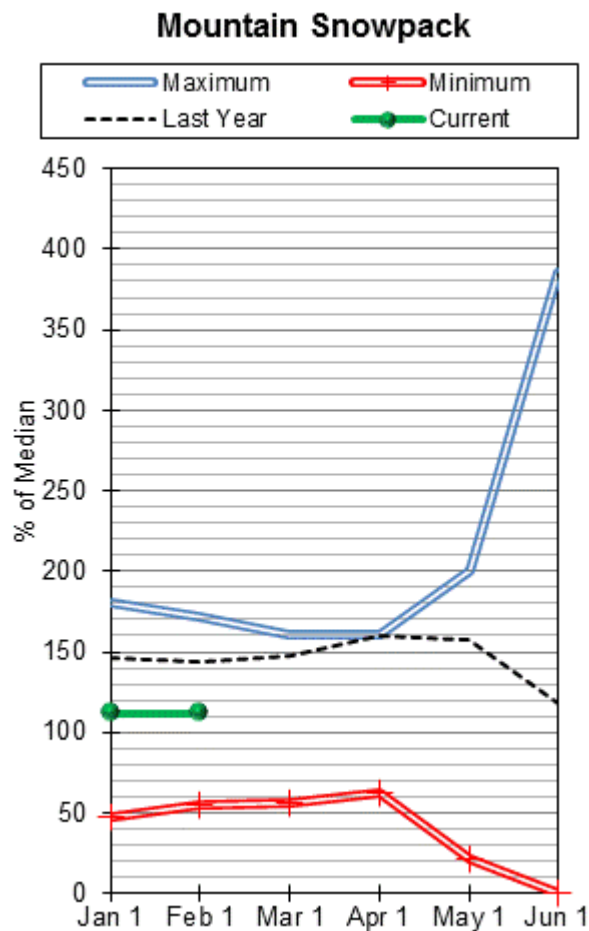
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Canyon Ferry Lake	1559.2	1483.7	1531.0	2043.0
Helena Valley Reservoir	5.3	6.2	4.7	9.2
Lake Helena	10.0	9.7	10.9	12.7
Hauser Lake & Lake Helena	70.4	69.6	73.5	74.6
Holter Lake	80.9	81.1	80.7	81.9
Fort Peck Lake	15042.5	12786.8	12953.0	18910.0
Basin-wide Total	16768.2	14437.0	14653.8	21131.4
# of reservoirs	6	6	6	6

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
HEADWATERS MAINSTEM	8	122%	125%
SMITH-JUDITH-MUSSELSHELL	10	112%	145%
SUN-TETON-MARIAS	6	91%	108%
MAINSTEM ab FT PECK RES	25	108%	127%
MILK RIVER BASIN	9	82%	119%
MISSOURI MAINSTEM BASIN	34	104%	126%

Smith-Judith-Musselshell River Basins



The combined Smith-Judith-Musselshell basin continues to hold above normal snowpack on February 1st. The storm that occurred during the first week of the month took the basin from above normal for Jan 1 (116%) and raised the snowpack to well above normal by January 15th (129%) at SNOTEL sites in the basin. The latter half of the month did not yield much in the way of snowfall, and low-elevation sites in the region experienced some melt during the last week of the month. While most sites are above normal, one SNOTEL site in the Crazy Mountains (Porcupine SNOTEL, 78%) and one site in the Little Belt Mountains (Boulder Mtn SNOTEL, 90%) are below normal for February 1st. While the basin did see well above normal conditions during the middle of the month, the dry and warm weather caused the basin to slip down 5 percent since Jan 1. Overall, the basin is above normal for Feb 1 with 111 percent of normal snowpack, which is 93 percent of last year at this time.

Valley weather stations received 132 percent of monthly average precipitation for January, while mountain SNOTEL sites received 107 percent. Currently on February 1st, the Smith-Judith-Musselshell River Basin is 105 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 121 percent of average.

Basin-wide reservoir storage is at 169 percent of average and 158 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Smith-Judith-Musselshell Rivers is currently at 112 percent of average and 76 percent of last year.

Smith-Judith-Musselshell Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

SMITH-JUDITH-MUSSELSHELL	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Sheep Ck nr White Sulphur Springs	APR-JUL	13.8	17	19.2	124%	21	25	15.5
	APR-SEP	16.3	20	23	125%	25	29	18.4
Smith R bl Eagle Ck ²	APR-JUL	74	106	127	120%	148	180	106
	APR-SEP	83	119	144	124%	169	205	116
NF Musselshell R nr Delpine	APR-JUL	2	3.2	4.1	121%	4.9	6.2	3.4
	APR-SEP	2.4	3.9	4.8	120%	5.8	7.2	4
SF Musselshell R ab Martinsdale	APR-JUL	3	22	35	100%	48	67	35
	APR-SEP	3.9	24	38	100%	52	72	38
Musselshell R at Harlowton ²	APR-JUL	7.5	40	62	109%	84	117	57
	APR-SEP	3.8	38	62	105%	86	120	59
Musselshell R nr Roundup ²	APR-JUL	-23	27	72	107%	118	185	67
	APR-SEP	-25	23	69	105%	114	181	66

1) 90% and 10% exceedance probabilities are actually 95% and 5%

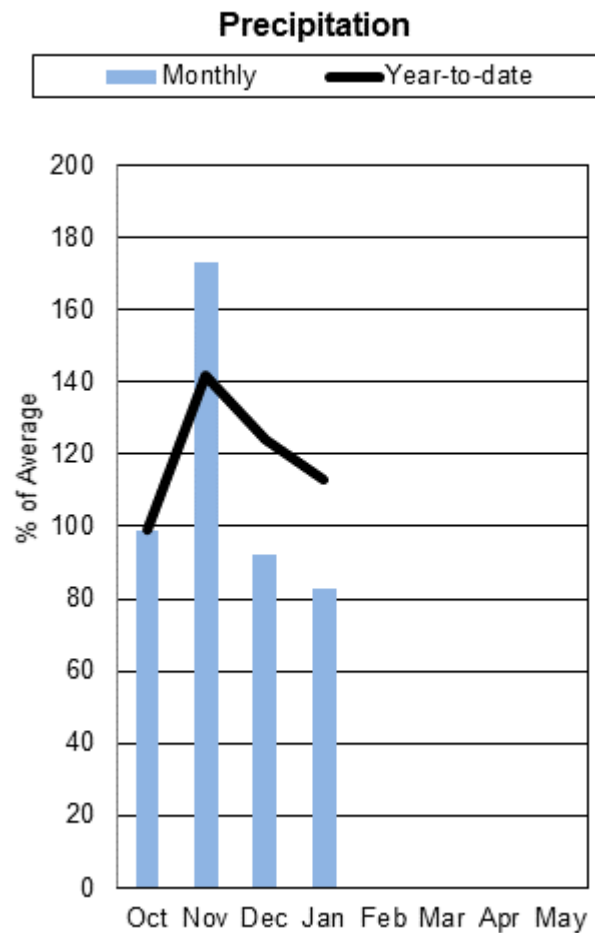
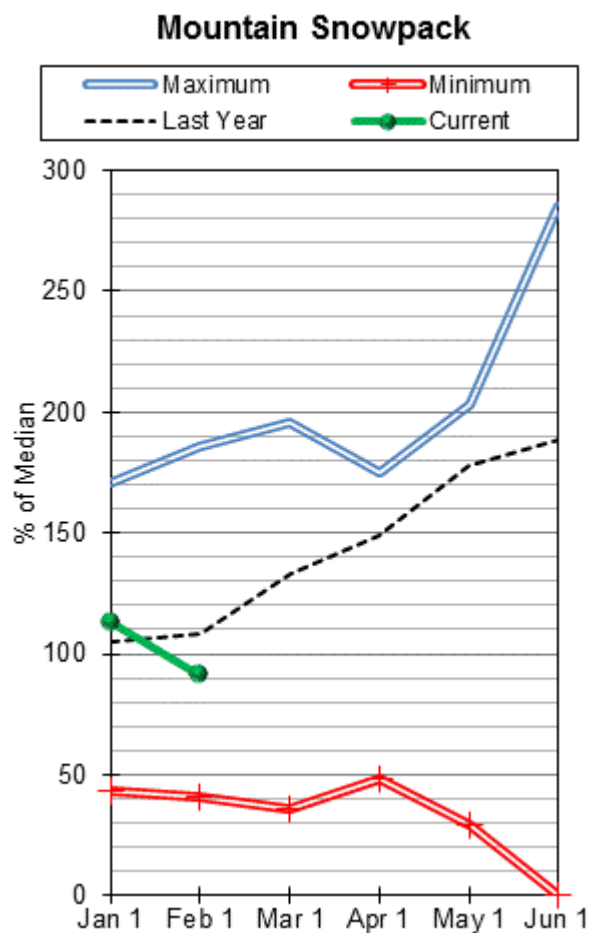
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Smith River Res	8.8	6.7	5.5	10.6
Ackley Lake	3.9	3.6	2.6	7.0
Bair Res	5.4	3.5	2.9	7.0
Martinsdale Res	18.2	5.5	7.7	23.1
Deadman's Basin Res	63.4	43.5	40.1	72.2
Basin-wide Total	99.5	62.8	58.8	119.9
# of reservoirs	5	5	5	5

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
SMITH	6	114%	143%
HIGHWOOD	2	65%	120%
JUDITH	4	119%	150%
MUSSELSHELL	3	111%	143%
SMITH-JUDITH-MUSSELSHELL	10	112%	145%

Sun-Teton-Marias River Basins



Starting the month of January at 113 percent of normal, the Sun-Teton-Marias River Basin ended the month in different manner. The basin's largest January snowpack accumulation occurred over the 1st week of the month. This storm increased the basin-wide snow water equivalent by almost 2.0 inches pushing the basin up to about 120 percent of normal conditions. The basin remained above normal until above average temperatures reduced snowpack levels over the last week on the month. From January 25th to February 1st the basin saw a 0.6 inch reduction in snow water equivalent. Following the late November storm that graced the region, the Sun-Teton-Marias had not seen well below normal snow pack conditions until now. Currently the basin is below average at 91 percent of normal and 108 percent of last year at this time.

Valley weather stations received 103 percent of monthly average precipitation for January, while mountain SNOTEL sites received 83 percent. Currently on February 1st, the Sun-Teton-Marias River Basin is 116 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 89 percent of average.

Basin-wide reservoir storage is currently 108 percent of average and 96 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Sun-Teton-Marias Rivers is currently at 95 percent of average and 70 percent of last year.

Sun-Teton-Marias

Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

SUN-TETON-MARIAS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Gibson Reservoir Inflow	APR-JUL	295	350	390	99%	425	480	395
	APR-SEP	330	390	430	98%	470	530	440
Two Medicine R nr Browning ²	APR-JUL	130	155	172	94%	189	215	183
	APR-SEP	139	165	182	94%	199	225	194
Badger Ck nr Browning	APR-JUL	55	72	83	94%	94	111	88
	APR-SEP	67	85	97	94%	109	127	103
Swift Reservoir Inflow ²	APR-JUL	32	43	51	89%	59	70	57
	APR-SEP	40	52	61	91%	70	82	67
Dupuyer Ck nr Valier	APR-JUL	1.5	4.7	9.5	86%	14.3	21	11.1
	APR-SEP	1.8	5.5	10.8	85%	16	24	12.7
Cut Bank Ck nr Browning	APR-JUL	36	50	60	87%	70	84	69
	APR-SEP	41	56	66	88%	76	91	75
Marias R nr Shelby ²	APR-JUL	144	250	325	94%	395	500	345
	APR-SEP	144	255	335	93%	410	520	360
Teton R nr Dutton	APR-JUL	5	26	45	107%	63	90	42
	APR-SEP	5.2	31	51	106%	71	100	48

1) 90% and 10% exceedance probabilities are actually 95% and 5%

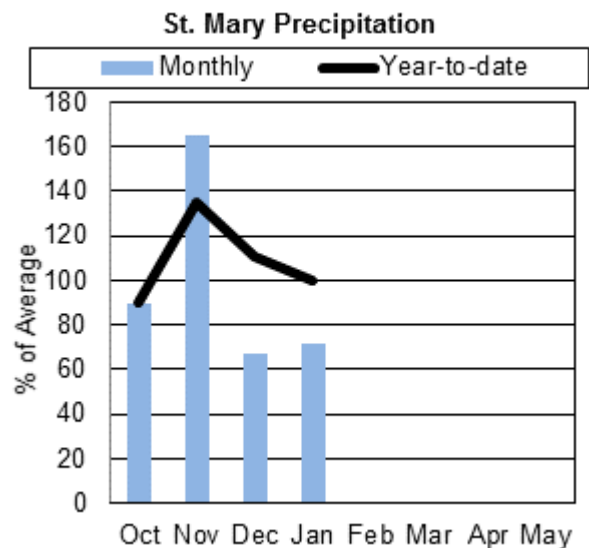
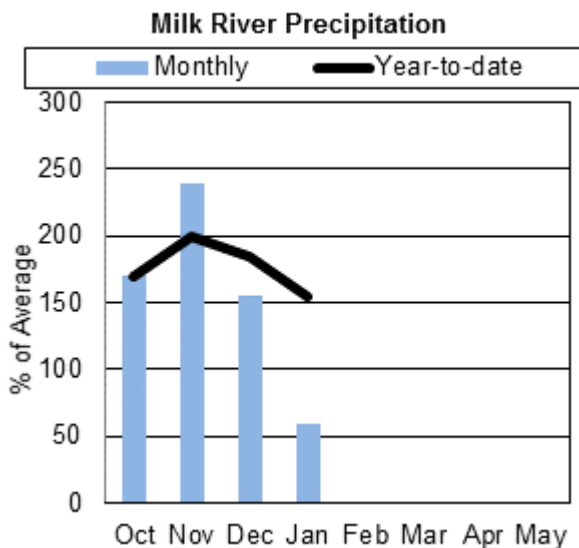
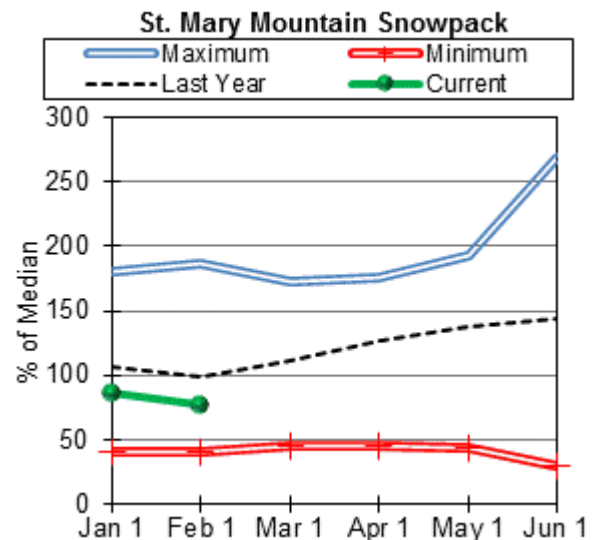
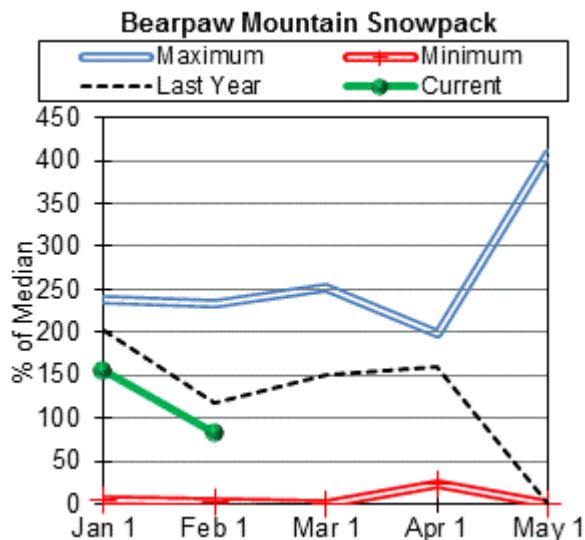
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Gibson Res	17.3	16.5	39.9	99.1
Pishkun Res	19.5	6.1	17.5	32.0
Willow Creek Res - Augusta	13.1	28.8	22.9	32.2
Lower Two Medicine Lake	10.3	6.3	8.2	11.9
Four Horns Lake	9.9	11.2	10.2	19.2
Swift Res	17.3	12.8	15.3	30.0
Lake Frances	69.8	34.9	57.5	112.0
Lake Elwell (Tiber)	786.5	724.1	700.8	1347.0
Basin-wide Total	943.6	840.7	872.3	1683.4
# of reservoirs	8	8	8	8

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
SUN	2	103%	109%
TETON	3	89%	110%
MARIAS	3	85%	107%
SUN-TETON-MARIAS	6	91%	108%

St. Mary and Milk River Basins



Unlike the Sun, Teton, and Marias River Basin to the south the Saint Mary-Milk River Basin entered the month of January with below normal snow pack conditions at 91 percent of normal. Several substantial storms over the course of the first three weeks of the month supported the basin snow pack at slightly below normal. Unfortunately, the above average temperatures during the last week of January reduced basin-wide snow water equivalent placing the basin further into below normal conditions. As of February 1st the basin-wide snowpack was ranked 5th (35 years record) for lowest snow water equivalent to date. Currently the basin is below average at 79 percent of normal and 84 percent of last year at this time.

Valley weather stations received 221 percent of monthly average precipitation for January, while mountain SNOTEL sites received 70 percent. Currently on February 1st, the Sun-Teton-Marias River Basin is 115 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 88 percent of average.

Basin-wide reservoir storage is currently 167 percent of average and 135 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Saint Mary-Milk River is currently at 82 percent of average and 59 percent of last year.

St. Mary & Milk Basins

Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

ST. MARY & MILK BASINS	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Lake Sherburne Inflow	APR-JUL	66	75	81	84%	87	96	97
	APR-SEP	79	88	95	85%	101	110	112
St. Mary R nr Babb ²	APR-JUL	235	275	300	81%	330	370	370
	APR-SEP	280	325	350	82%	380	425	425
St. Mary R at Intl Boundary ²	APR-JUL	240	300	340	78%	380	440	435
	APR-SEP	295	360	400	79%	440	500	505
Milk R at Western Crossing of Intl Bndry, AB	MAR-SEP	18	26	35	108%	49	61	32.77
	MAR-SEP	43	59	77	95%	95	149	81.6

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

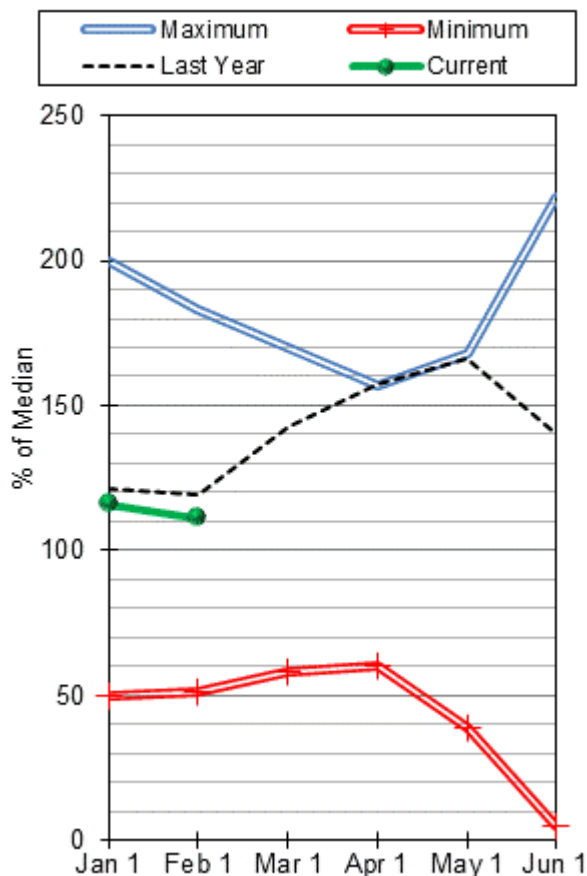
3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Lake Sherburne	53.5	29.5	28.5	64.3
Fresno Res	70.2	56.0	41.7	127.0
Nelson Res	45.9	51.9	31.5	66.8
Basin-wide Total	169.5	137.4	101.7	258.1
# of reservoirs	3	3	3	3

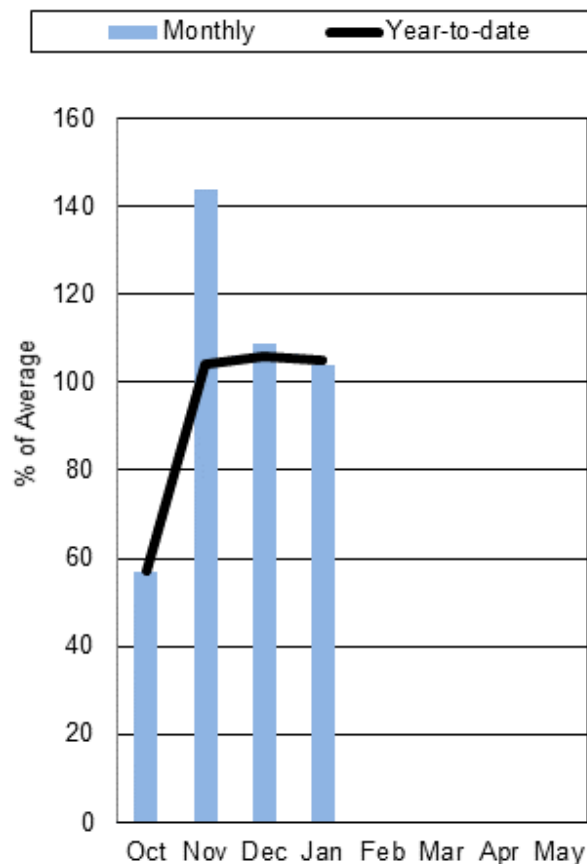
Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
ST. MARY	2	77%	99%
BEARPAW MOUNTAINS	3	92%	130%
CYPRESS HILLS, CANADA	6	77%	113%
MILK RIVER BASIN	9	82%	119%
ST. MARY & MILK BASINS	11	79%	107%

Upper Yellowstone River Basin

Mountain Snowpack



Precipitation



On February 1st the Upper Yellowstone basin has 111% of normal SWE. Although January produced some unseasonably warm temperatures and periods of no precipitation in some areas of the basin, overall the snowpack remains near normal for this time of year. Eight out of twenty-five mountain measurement locations are below normal. Of these eight sites, three have well below normal SWE values for Feb 1. These sites are Cole Creek SNOTEL on the eastern Beartooth front near Red Lodge, MT that is currently at 83% of normal, Porcupine SNOTEL on the west slope of the Crazy Mountains that is at 78% of normal, and Thumb Divide SNOTEL in Yellowstone National Park in Wyoming that is at 85% of normal.

Valley weather stations received 130 percent of monthly average precipitation for January, while mountain SNOTEL sites received 104 percent. Currently on February 1st, the Upper Yellowstone River Basin is 104 percent of the water year-to-date average. Last year at this time the water year-to-date precipitation was 113 percent of average.

Basin-wide reservoir storage is currently at 142 percent of average and 103 percent of last year at this time.

The basin-wide average April-July streamflow forecast for the Upper Yellowstone River is currently at 106 percent of average and 72 percent of last year.

Upper Yellowstone River Basin Streamflow Forecasts - February 1, 2015

Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast

UPPER YELLOWSTONE RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
Yellowstone R at Yellowstone Lake Outlet	APR-JUL	440	505	545	95%	585	650	575
	APR-SEP	580	660	715	93%	770	850	770
Yellowstone R at Corwin Springs	APR-JUL	1420	1570	1680	106%	1790	1940	1590
	APR-SEP	1660	1840	1970	105%	2100	2280	1880
Yellowstone R at Livingston	APR-JUL	1590	1790	1920	107%	2050	2240	1800
	APR-SEP	1870	2100	2250	105%	2410	2630	2140
Shields R nr Livingston	APR-JUL	36	83	114	88%	146	192	129
	APR-SEP	39	90	125	87%	159	210	143
Boulder R at Big Timber	APR-JUL	210	250	280	100%	305	345	280
	APR-SEP	220	265	300	100%	330	375	300
Mystic Lake Inflow ²	APR-JUL	53	58	61	103%	64	69	59
	APR-SEP	67	74	78	105%	82	89	74
Stillwater R nr Absarokee ²	APR-JUL	360	420	460	103%	500	560	445
	APR-SEP	430	495	540	104%	585	655	520
Clarks Fk Yellowstone R nr Belfry	APR-JUL	505	560	595	117%	630	685	510
	APR-SEP	560	615	655	119%	695	750	550
Cooney Reservoir Inflow	APR-JUL	14.3	27	35	92%	43	56	38
	APR-SEP	22	35	44	92%	53	67	48
Yellowstone R at Billings	APR-JUL	2690	3150	3460	107%	3780	4240	3230
	APR-SEP	3050	3600	3970	106%	4340	4890	3730

1) 90% and 10% exceedance probabilities are actually 95% and 5%

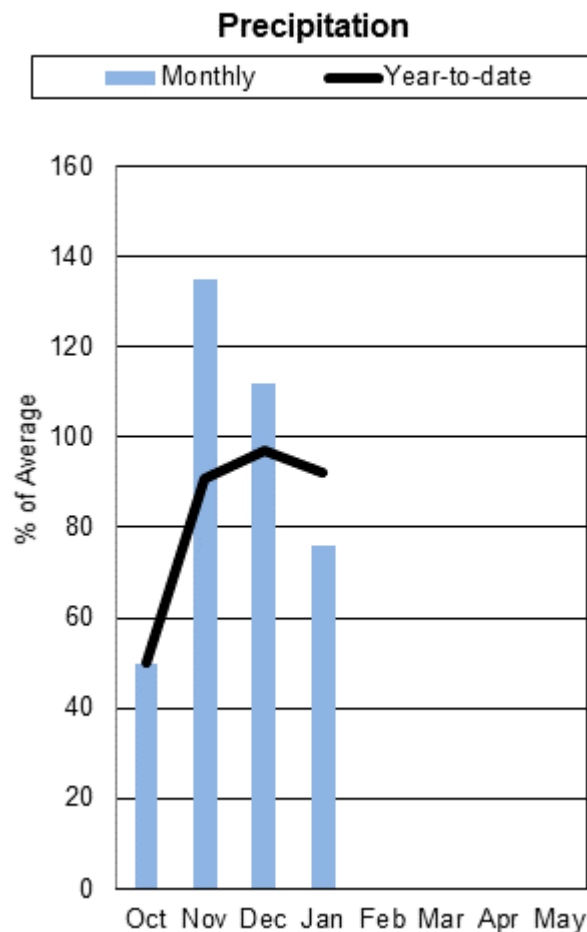
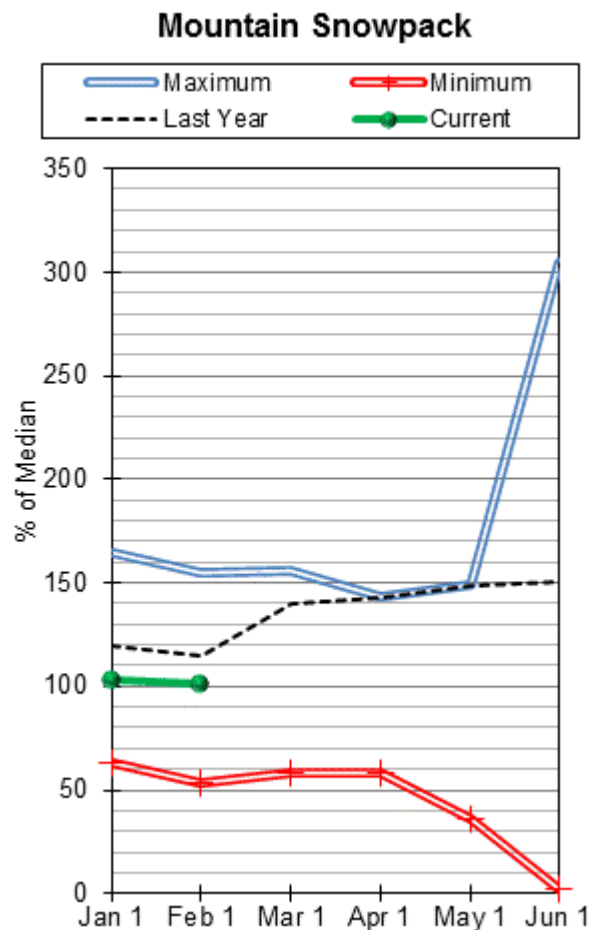
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Mystic Lake	7.5	7.3	5.3	21.0
Cooney Res	21.0	17.7	17.2	27.4
Basin-wide Total	28.6	25.0	22.5	48.4
# of reservoirs	2	2	2	2

Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median
YELLOWSTONE ab LIVINGSTON	12	109%	107%
SHIELDS	4	119%	138%
BOULDER-STILLWATER	3	109%	127%
RED LODGE-ROCK CREEK	2	99%	173%
CLARK'S FORK	7	119%	119%
UPPER YELLOWSTONE RIVER BASIN	25	111%	119%

Lower Yellowstone River Basin



January was the tale of two seasons. The first part of the month was typical cold wintery January while the second half was like late spring or early summer. January snowpack started off the month a little above average at 103 percent. A nice storm hit basin wide the first week in January and a series of small little storms continued throughout the month. However, the last week in January brought record high temperatures to the area. As a result, storms were a mix of more rain and little snow. This brought the lower elevation snowpack percentages down a little with higher elevation snowpacks remaining steady. Any snow in the valley floors or in the plains has disappeared. Overall snowpacks percentages range from 94 percent in the Wind River Basin to 113 percent in the Powder River Basin. As of February 1, the Lower Yellowstone River overall basin percentage was 101 percent of normal and 88 percent of last year.

January precipitation in the Lower Yellowstone area ranged from a disappointing 56 percent of average in the Wind River basin to 107 percent of average in the Shoshone River basin. Basin wide January precipitation came in at 76 percent of average. Last year at this time the basin wide percentage was 107 percent.

January reservoir storages continue to be near to well above average. Big Horn Lake is currently at 107 percent of average and Tongue River Reservoir is 191 percent of average. Basin-wide reservoir storage is 109 percent of average. Last year at this time the basin-wide reservoir storage was 114 percent of average.

The basin-wide average April-July streamflow forecast for the Lower Yellowstone River is currently at 101 percent of average and 64 percent of last year.

Lower Yellowstone River Basin (Wyoming) Streamflow Forecasts - February 1, 2015

LOWER YELLOWSTONE RIVER BASIN (Wyoming)	Forecast Period	Forecast Exceedance Probabilities for Risk Assessment Chance that actual volume will exceed forecast						30yr Avg (KAF)
		90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	
Bighorn R nr St. Xavier ²	APR-JUL	685	1050	1300	94%	1550	1910	1380
	APR-SEP	700	1110	1380	95%	1650	2060	1460
Little Bighorn R nr Hardin	APR-JUL	45	74	93	95%	112	141	98
	APR-SEP	56	88	109	98%	130	162	111
Tongue R nr Dayton ²	APR-JUL	52	70	83	97%	96	114	86
	APR-SEP	62	82	95	97%	108	128	98
Big Goose Ck nr Sheridan	APR-JUL	24	35	43	93%	51	62	46
	APR-SEP	30	42	50	93%	58	70	54
Little Goose Ck nr Bighorn	APR-JUL	16.6	24	29	94%	34	41	31
	APR-SEP	24	32	37	95%	42	50	39
Tongue River Reservoir Inflow ²	APR-JUL	72	136	179	93%	220	285	193
	APR-SEP	88	155	200	93%	245	310	215
Yellowstone R at Miles City ²	APR-JUL	3500	4350	4920	103%	5490	6340	4780
	APR-SEP	3920	4920	5590	103%	6260	7260	5450
Powder R at Moorehead	APR-JUL	69	129	169	95%	210	270	177
	APR-SEP	86	147	189	96%	230	290	196
Powder R nr Locate	APR-JUL	67	141	191	96%	240	315	199
	APR-SEP	79	159	210	95%	265	345	220
Yellowstone R nr Sidney ²	APR-JUL	3380	4330	4980	103%	5630	6580	4830
	APR-SEP	3670	4800	5570	103%	6340	7470	5430

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

3) Median value used in place of average

Reservoir Storage End of January, 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
Bighorn Lake	877.5	917.4	825.9	1356.0
Tongue River Res	51.0	52.7	26.7	79.1
Basin-wide Total	928.5	970.2	852.6	1435.1
# of reservoirs	2	2	2	2
Watershed Snowpack Analysis February 1, 2015	# of Sites	% Median	Last Year % Median	
WIND RIVER (Wyoming)	18	94%	97%	
SHOSHONE RIVER (Wyoming)	4	105%	115%	
BIGHORN RIVER (Wyoming)	18	106%	127%	
LITTLE BIGHORN (Wyoming)	3	100%	134%	
TONGUE RIVER (Wyoming)	9	96%	117%	
POWDER RIVER (Wyoming)	9	113%	143%	
LOWER YELLOWSTONE RIVER BASIN (Wyoming)	46	101%	115%	

Montana Site Report

	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Albro Lake	SNOTEL	8300	30	9.0	11.0	82%	17.5	159%
Ambrose	SC	6480						
Arch Falls	SC	7350						
Ashley Divide	SC	4820	14	3.8	4.5	84%	2.5	56%
Badger Pass	SNOTEL	6900	58	20.5	19.5	105%	21.4	110%
Banfield Mountain	SNOTEL	5600	27	7.9	12.1	65%	9.8	81%
Baree Creek	SC	5500						
Baree Midway	SC	4600						
Baree Trail	SC	3800						
Barker Lakes	SNOTEL	8250	29	8.3	8.0	104%	10.4	130%
Basin Creek	SNOTEL	7180	20	5.4	4.5	120%	7.5	167%
Bassoo Peak	SC	5150						
Beagle Springs	SNOTEL	8850	23	5.0	5.2	96%	5.5	106%
Bear Basin	SC	8150						
Bear Mountain	SNOTEL	5400	52	18.9	36.6	52%	28.2	77%
Beartooth Lake	SNOTEL	9360	55	15.7	13.9	113%	15.1	109%
Beaver Creek	SNOTEL	7850	37	10.0	11.5	87%	12.3	107%
Big Snowy	SC	7150						
Bisson Creek	SNOTEL	4920	28	8.1	6.3	129%	7.4	117%
Black Bear	SNOTEL	8170	68	20.5	23.3	88%	21.5	92%
Black Mountain	SC	7750						
Black Pine	SNOTEL	7210	30	8.5	6.2	137%	7.6	123%
Blacktail	SC	5650	25	7.9	8.8	90%	7.2	82%
Blacktail Mtn	SNOTEL	5650	25	7.7			8.3	
Bloody Dick	SNOTEL	7600	31	8.4	7.6	111%	8.6	113%
Bots Sots	SC	7750						
Boulder Mountain	SNOTEL	7950	39	11.3	12.6	90%	16.9	134%
Box Canyon	SNOTEL	6670	24	7.2	5.8	124%	6.7	116%
Boxelder Creek	SC	5100	17	4.8	4.4	109%	4.9	111%
Brackett Creek	SNOTEL	7320	51	16.5	11.4	145%	16.8	147%
Bristow Creek	SC	3900						
Brush Creek Timber	SC	5000						
Bull Mountain	SC	6600						
Burnt Mtn	SNOTEL	5880	16	3.7	2.4	154%	5.9	246%
Cabin Creek	SC	5200						
Calvert Creek	SNOTEL	6430	27	7.3	5.5	133%	6.0	109%
Camp Senia	SC	7890						
Canyon	SNOTEL	7870	34	8.8	8.2	107%	7.8	95%
Carrot Basin	SNOTEL	9000	48	13.9	16.7	83%	15.8	95%
Carrot Basin	SC	9000						
Chessman Reservoir	SC	6200	18	5.2	2.1	248%	2.4	114%
Chicago Ridge	SC	5800	55	17.2			20.4	
Chicken Creek	SC	4060	41	11.7	10.8	108%	12.7	118%
Clover Meadow	SNOTEL	8600	27	7.3	10.3	71%	8.7	84%
Cole Creek	SNOTEL	7850	28	7.0	8.4	83%	12.8	152%
Combination	SNOTEL	5600	11	2.7	3.0	90%	3.1	103%
Copper Bottom	SNOTEL	5200	14	5.0			4.6	
Copper Camp	SNOTEL	6950	62	26.7			24.4	
Copper Camp	SC	6950						
Copper Mountain	SC	7700	30	8.0	6.2	129%	7.2	116%
Cottonwood Creek	SC	6400						
Coyote Hill	SC	4200	27	7.2	6.0	120%	6.2	103%
Crevice Mountain	SC	8400	28	7.3	6.0	122%		
Crystal Lake	SNOTEL	6050	34	7.6	7.4	103%	11.5	155%

	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Dad Creek Lake	SC	8800						
Daisy Peak	SNOTEL	7600	25	6.8	5.9	115%	8.5	144%
Daly Creek	SNOTEL	5780	28	7.7	6.6	117%	7.7	117%
Darkhorse Lake	SNOTEL	8600	67	22.5	17.6	128%	22.7	129%
Deadman Creek	SNOTEL	6450	31	9.1	6.5	140%	9.8	151%
Desert Mountain	SC	5600						
Discovery Basin	SC	7050	31	8.8	5.9	149%	5.7	97%
Divide	SNOTEL	7800	22	4.6	6.2	74%	5.0	81%
Dix Hill	SC	6400	22	6.1	6.6	92%	6.5	98%
Dupuyer Creek	SNOTEL	5750	10	2.7	5.0	54%	5.4	108%
Eagle Creek	SC	7000						
East Boulder Mine	SNOTEL	6335	4	1.6			3.3	
El Dorado Mine	SC	7800						
Elk Horn Springs	SC	7800						
Elk Peak	SNOTEL	7600	40	14.0			18.0	
Elk Peak	SC	8000						
Emery Creek	SNOTEL	4350	36	11.0	9.5	116%	12.6	133%
Emery Creek	SC	4350						
Fatty Creek	SC	5500						
Fish Creek	SC	8000	23	6.2	5.5	113%	9.7	176%
Fisher Creek	SNOTEL	9100	72	22.2	20.6	108%	22.7	110%
Flattop Mtn.	SNOTEL	6300	76	24.2	28.5	85%	28.5	100%
Fleecer Ridge	SC	7500						
Forest Lake	SC	6400						
Four Mile	SC	6900						
Freight Creek	SC	6000						
Frohner Meadow	SNOTEL	6480	18	5.9	4.5	131%	5.5	122%
Garver Creek	SNOTEL	4250	19	5.0	6.8	74%	5.1	75%
Gibbons Pass	SC	7100						
Goat Mountain	SC	7000						
Government Saddle	SC	5270	49	14.6			19.4	
Grave Creek	SNOTEL	4300	34	10.1	10.9	93%	11.9	109%
Griffin Creek Divide	SC	5150						
Hand Creek	SNOTEL	5035	21	5.9	7.7	77%	7.7	100%
Hawkins Lake	SNOTEL	6450	34	11.8	16.1	73%	13.9	86%
Haymaker	SC	8050						
Hebgen Dam	SC	6550	29	7.4	6.8	109%	5.2	76%
Hell Roaring Divide	SC	5770	51	17.3	19.9	87%	20.6	104%
Herrig Junction	SC	4850	51	16.1	17.6	91%	16.9	96%
Highwood Divide	SC	5650	7	2.0	4.1	49%	4.1	100%
Highwood Station	SC	4600	8	2.5	2.8	89%	4.2	150%
Holbrook	SC	4530	23	6.1	6.0	102%	5.4	90%
Hoodoo Basin	SNOTEL	6050	63	20.2	26.3	77%	22.2	84%
Humboldt Gulch	SNOTEL	4250	26	8.0	8.6	93%	9.9	115%
Jakes Canyon	SC	9040						
Johnson Park	SC	6450	20	4.9	3.4	144%	5.3	156%
Kishenehn	SC	3890						
Kraft Creek	SNOTEL	4750	30	8.2			12.5	
Lake Camp	SC	7780	28	6.6	6.0	110%	4.6	77%
Lake Creek	SC	6100						
Lakeview Canyon	SC	6930						
Lakeview Ridge	SNOTEL	7400	18	3.8	6.5	58%	3.2	49%
Lemhi Ridge	SNOTEL	8100	27	7.5	6.4	117%	7.4	116%
Lick Creek	SNOTEL	6860	21	5.9	5.9	100%	6.9	117%
Little Park	SC	7400						
Logan Creek	SC	4300						

	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Lolo Pass	SNOTEL	5240	53	16.8	18.7	90%	18.6	99%
Lone Mountain	SNOTEL	8880	31	8.8	11.2	79%	11.7	104%
Lookout	SNOTEL	5140	33	10.5	19.4	54%	12.8	66%
Lower Twin	SNOTEL	7900	34	6.6	11.0	60%	14.3	130%
Lubrecht Flume	SNOTEL	4680	20	5.7	3.8	150%	3.4	89%
Lubrecht Forest No 3	SC	5450	16	4.8	3.2	150%	3.5	109%
Lubrecht Forest No 4	SC	4650	7	2.2	1.8	122%	1.4	78%
Lubrecht Forest No 6	SC	4040	11	3.3	2.0	165%	2.4	120%
Lubrecht Hydroplot	SC	4200	20	5.6	3.2	175%	2.4	75%
Lupine Creek	SC	7380	21	5.5	4.8	115%	4.8	100%
Madison Plateau	SNOTEL	7750	43	12.6	14.1	89%	12.2	87%
Many Glacier	SNOTEL	4900	16	4.9	9.5	52%	9.0	95%
Marias Pass	SC	5250	23	6.6	10.6	62%	10.9	103%
Mineral Creek	SC	4000						
Monument Peak	SNOTEL	8850	49	13.4	12.0	112%	15.5	129%
Moss Peak	SNOTEL	6780	83	28.5	21.7	131%	25.5	118%
Moulton Reservoir	SC	6850	23	7.0	4.2	167%	3.8	90%
Mount Allen No 7	SC	5700						
Mount Lockhart	SNOTEL	6400	37	12.5	12.2	102%	13.4	110%
Mudd Lake	SC	7650						
Mule Creek	SNOTEL	8300	38	10.9	8.8	124%	10.9	124%
N Fk Elk Creek	SNOTEL	6250	30	8.5	6.7	127%	7.7	115%
Nevada Ridge	SNOTEL	7020	37	11.2	8.6	130%	9.6	112%
New World	SC	6900			7.8			
Nez Perce Camp	SNOTEL	5650	37	9.9	8.6	115%	10.5	122%
Noisy Basin	SNOTEL	6040	85	29.7	25.4	117%	29.1	115%
Norris Basin	SC	7550	25	6.0	6.5	92%	6.1	94%
North Fork Jocko	SNOTEL	6330	83	28.2	27.1	104%	30.0	111%
Northeast Entrance	SNOTEL	7350	31	8.5	6.4	133%	7.3	114%
Onion Park	SNOTEL	7410	36	9.5	7.9	120%	10.8	137%
Ophir Park	SC	7150	31	9.1	8.7	105%	9.0	103%
Parker Peak	SNOTEL	9400	58	16.4	13.0	126%	16.8	129%
Peterson Meadows	SNOTEL	7200	27	7.8	5.5	142%	6.7	122%
Pickfoot Creek	SNOTEL	6650	28	7.3	6.5	112%	9.5	146%
Pike Creek	SNOTEL	5930	9	2.5			3.7	
Pipestone Pass	SC	7200	17	4.2	2.4	175%	4.0	167%
Placer Basin	SNOTEL	8830	40	10.2	10.5	97%	13.7	130%
Poorman Creek	SNOTEL	5100	45	14.2	23.4	61%	22.1	94%
Porcupine	SNOTEL	6500	11	3.2	4.1	78%	5.4	132%
Potomageton Park	SC	7150						
Revais	SC	4800						
Rock Creek Mdws	SC	3400	31	8.8			6.6	
Rocker Peak	SNOTEL	8000	34	9.8	8.2	120%	10.3	126%
Rocky Boy	SNOTEL	4700	15	4.2	3.2	131%	4.8	150%
Roland Summit	SC	5120						
S Fork Shields	SNOTEL	8100	29	9.0	9.2	98%	12.3	134%
Sacajawea	SNOTEL	6550	35	11.4	8.9	128%	12.0	135%
Saddle Mtn.	SNOTEL	7940	61	19.1	15.8	121%	19.3	122%
Short Creek	SNOTEL	7000	11	2.8	3.6	78%	2.7	75%
Shower Falls	SNOTEL	8100	43	12.0	12.1	99%	14.8	122%
Skalkaho Summit	SNOTEL	7250	47	15.0	14.0	107%	13.8	99%
Sleeping Woman	SNOTEL	6150	31	9.8	9.6	102%	9.3	97%
Slide Rock Mountain	SC	7100						
Spotted Bear Mountain	SC	7000	24	7.3	8.7	84%	9.7	111%
Spur Park	SNOTEL	8100	50	15.3	12.8	120%	19.2	150%
Stahl Peak	SNOTEL	6030	58	19.1	22.1	86%	20.8	94%

	Network	Elevation (ft)	Depth (in)	SWE (in)	Median (in)	% Median	Last Year SWE (in)	Last Year % Median
Stahl Peak	SC	6030						
Stemple Pass	SC	6600						
Storm Lake	SC	7780	33	9.2	7.4	124%	8.1	109%
Stringer Creek	SNOTEL	6550	30	7.8	6.7	116%	9.8	146%
Stryker Basin	SC	6180	56	19.1	19.6	97%	21.2	108%
Stuart Mountain	SNOTEL	7400	67	23.4	20.4	115%	20.0	98%
Taylor Road	SC	4080	0	0.0	2.2	0%	3.0	136%
Ten Mile Lower	SC	6600	23	6.7	4.0	168%	5.8	145%
Ten Mile Middle	SC	6800	27	7.4	6.0	123%	7.5	125%
Tepee Creek	SNOTEL	8000	29	7.5	8.5	88%	6.1	72%
Timberline Creek	SC	8850						
Tizer Basin	SNOTEL	6880	20	5.9	6.0	98%	7.1	118%
Trinkus Lake	SC	6100	81	28.4	25.2	113%	26.6	106%
Truman Creek	SC	4060	8	2.4	2.9	83%	4.6	159%
Twelvemile Creek	SNOTEL	5600	36	11.0	11.0	100%	11.4	104%
Twenty-One Mile	SC	7150	31	7.4	10.0	74%	7.4	74%
Twin Lakes	SNOTEL	6400	69	27.5	24.9	110%	29.2	117%
Upper Holland Lake	SC	6200	63	19.6	20.6	95%	22.2	108%
Waldron	SNOTEL	5600	20	5.9	6.6	89%	7.3	111%
Warm Springs	SNOTEL	7800	56	16.2	12.3	132%	14.4	117%
Weasel Divide	SC	5450	50	14.8	20.6	72%	19.8	96%
West Yellowstone	SNOTEL	6700	25	6.2	7.0	89%	7.0	100%
Whiskey Creek	SNOTEL	6800	32	8.3	9.6	86%	8.6	90%
White Elephant	SNOTEL	7710	43	13.3	16.0	83%	11.9	74%
White Mill	SNOTEL	8700	56	18.3	14.6	125%	17.0	116%
Wolverine	SNOTEL	7650	31	9.7	7.1	137%	9.5	134%
Wood Creek	SNOTEL	5960	24	6.1	5.8	105%	6.2	107%
Wrong Creek	SC	5700						
Wrong Ridge	SC	6800						
Younts Peak	SNOTEL	8350			9.6			
Basin Index						100%		108%
# of sites						131		131

This page intentionally left blank.

Issued by:

**Jason Weller
Chief
Natural Resources Conservation Service
U.S. Department of Agriculture**

Released by:

**Ray Dotson
State Conservationist (Acting)
Natural Resources Conservation Service
Bozeman, Montana**



Federal Building, Room 443
10 E. Babcock
Bozeman, MT 59715



Montana
Water Supply Outlook
Report
Natural Resources Conservation Service

